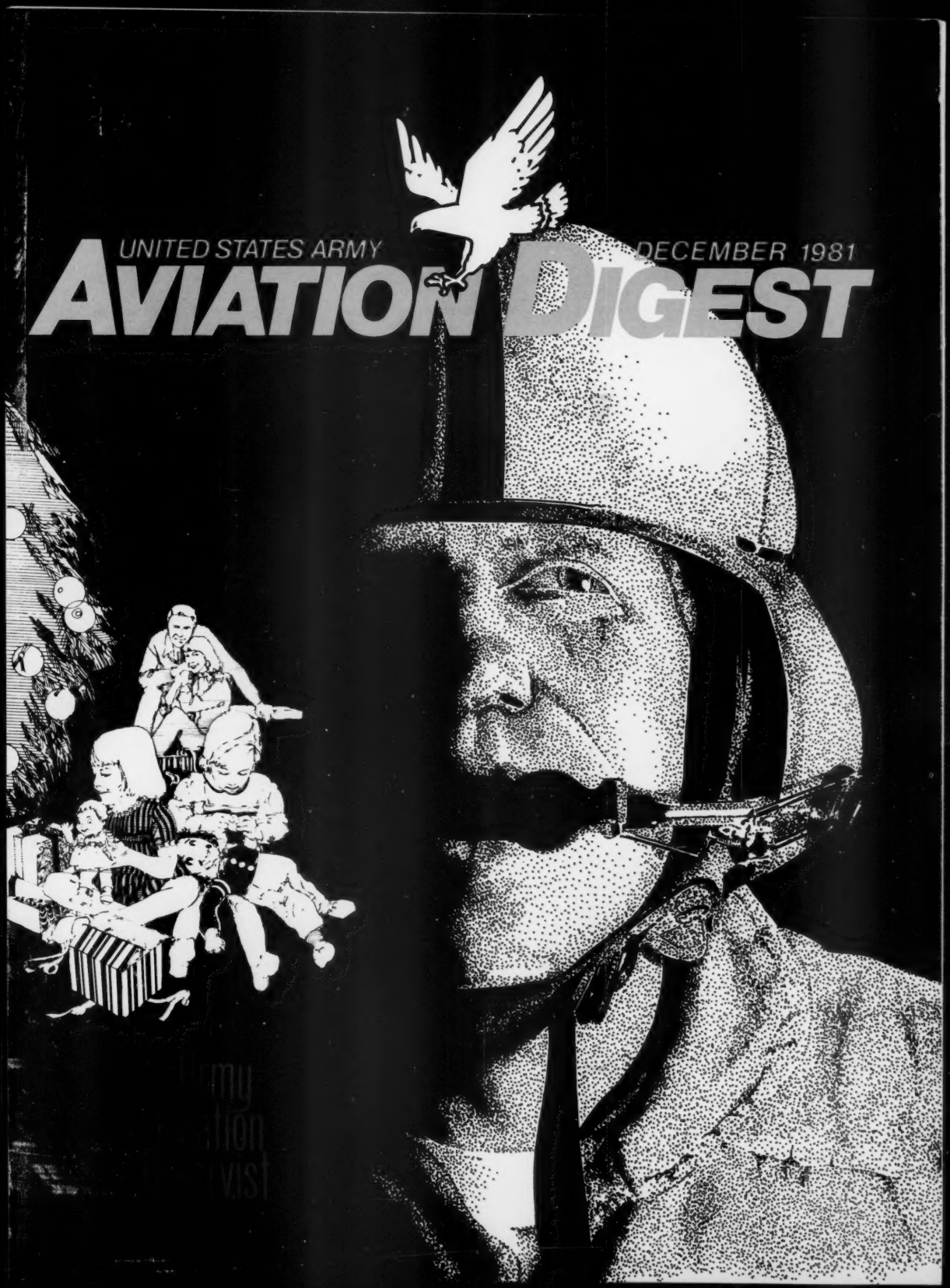
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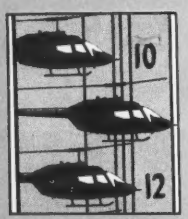

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Cover: **During this Christmas season when our prayers are for continued peace, the cover depicts one of our peacekeepers—the Army Aviation Reservist—at home and on the job. Illustration by CW2 Paul Fretts, a Reservist, 282d Aviation Company (Combat Support) (121st ARCOM) Ft. Rucker, AL**

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Honorable John A. Marsh Jr.
Secretary of the Army

Richard K. Tierney
Editor

The mission of the ***U.S. Army Aviation Digest (USPS 415-350)*** is to provide information of an operational, functional nature concerning safety and aircraft accident prevention, training, maintenance, operations, research and development, aviation medicine and other related data.

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Articles, photos and items of interest on Army Aviation are invited. Direct communication is authorized to: Editor, ***U.S. Army Aviation Digest,*** P.O. Drawer P, Fort Rucker, AL 36362. Manuscripts returned upon request.

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December is traditionally a time of sharing, so it is only appropriate that this issue of the *Aviation Digest* share with our many readers the story of our U.S. Army Reserve aviation personnel and the contribution which they make to the "TOTAL FORCE."

Major General William R. Berkman, Chief of the Army Reserve, leads off with a splendid introduction of the people, mission and equipment in "Army Reserve Aviation Today." He very properly and proudly states that the men and women in his command are an exceptional group marked by dedication and experience.

That theme is further echoed in the other articles in this issue which describe the professionalism Reserve aviation personnel used to accomplish their diversified missions.

I am delighted that we in the Active Army Aviation segment have been afforded a clearer understanding of our peers and compatriots in the Army Reserve and the Army National Guard (November's *Digest*). All of us who wear the Army uniform are on the "One Army" team with the common goal of national defense and the preservation of peace, we just work different schedules.

Each person and every unit in the Army Aviation community, Active and Reserve Component, should benefit greatly from the proceedings and actions taken during the 1981 Aviation Policy Committee Meeting/ Training Symposium held at Fort Rucker in November. Representatives of all major Army commands worldwide and the key Department of the Army staff agencies spent five days discussing and resolving aviation policy and training issues, with the aim of increasing aviation's effectiveness as a member of the combined arms team.

This issue carries a brief summary of the meeting in the Reporting Final section (page 17) with a more detailed comprehensive report scheduled for a later issue.

Keynoter for the conference was MG Guy S. Meloy Jr., Director of Training, ODCSOPS, DA, who challenged the aviation community to rise to even greater levels of tactical and technical proficiency. Featured opening speaker and ranking attendee for the conference was one of the Army's most senior aviators, General Robert M. Shoemaker, CG, U.S. Army Forces Command, who brought the group a meaningful message on our individual and collective responsibilities—with a focus on self-discipline and self-will. And a most important message conveyed to the conferees was that penned by General John W. Vessey, Jr., and reprinted for you hereon. I want to share his every word with all of our aviators and crewmembers so they will clearly understand the tremendous value attached to Army Aviation by the very top echelon of Army command and how we must safeguard this critical resource. The Vice Chief's words give us all much food for thought and some greater targets in 1982 for aviation units worldwide.

DEPARTMENT OF THE ARMY
OFFICE OF THE CHIEF OF STAFF
WASHINGTON, D.C. 20310

13 November 1981

SUBJECT: Command Responsibility

Members of the Aviaiton Training and Policy Conference

I had hoped to be here personally to open this very important and timely conference. I would like to take a few minutes to direct your attention to the inherent responsibilities of an aviation commander. Notice I say aviation commander, for unlike all other commanders, if an aviation commander does not do adequate mission planning, followed by detailed execution and debriefing, catastrophic results may occur.

We are seeing more and more needless accidents as a result of lack of command supervision, inadequate planning, deviations from planned mission profile, and failure to follow established unit procedures.

Simply stated, senior, experienced officers are in the chain of command to prevent accidents, and I expect commanders to accept the full responsibility of their position. The act of a commander climbing in an aircraft for a ride after the rotors are turning, is both unsatisfactory and totally unacceptable. Involvement by commanders in the briefings of their aviators, and the planning, preflighting, and participation in the flying business of their units, is both essential and critical.

As you progress through this conference I would like you to keep in mind that the ultimate responsibility of a commander is to TEACH, GUIDE, and SAFEGUARD his soldiers. I challenge each of you to evaluate your command and take the necessary actions to maintain our position as "Above the Best."

JOHN W. VESSEY, JR.
General, United States Army
Vice Chief of Staff

Major General Carl H. McNair Jr.
Commander,
U.S. Army Aviation Center
Fort Rucker, AL

Major General William R. Berkman
Chief, Army Reserve

ARMY RESERVE AVIATION TODAY

THE MISSION OF the Army Reserve may be stated succinctly as, "being ready to meet mobilization requirements." That mission has two parts: First, the Army Reserve must provide sufficiently manned and trained units equipped and capable to perform wartime missions with a minimum of postmobilization training. In addition, the Army Reserve must provide trained individual personnel in sufficient numbers to fill out Active and Reserve Component units upon mobilization, permit creation of new units and provide necessary replacements.

The aviation personnel who help the Army Reserve accomplish its mission are an exceptional group of dedicated and experienced men and women. Many of these people are Army Reserve aviators who have served two combat tours and logged well in excess of 1,000 hours of flight time, the average being more than 2,500 flight hours per person. In addition, an indispensable part of the aviation capability includes the equally dedicated and experienced body of

technicians at 38 Army Reserve flight facilities across the Nation.

Over the past decade the responsibilities of the Army's Reserve Components have grown, and they have become an even more essential element of the Total Army; but their resources have not kept pace. It is acknowledged that in the event of mobilization the Active Component of the Army must have the support of the Reserves in order to perform its wartime missions.

Today, the Army Reserve is comprised of almost 221,000 men and women drilling regularly in troop program units and more than 200,000 individual Reservists. The units provide a third of the Total Army's tactical support, a quarter of general support forces and a smaller, although significant, portion of the Army's nondivisional combat force.

Army Reserve aviation, military police, intelligence, psyops, civil affairs, petroleum handling, engineer, maintenance and quartermaster units represent some of the tactical support provided to the combat elements. Army Reserve training, administrative, medical and other general support units are essential for a successful training and mobilization base. Army Reservists who are Pathfinders or assigned to Special Forces, Artillery or Combat Engineers are essential to the Army's nondivisional combat increment.

CAPSTONE is a vehicle whereby FORSCOM is welding together the Total Army by using cohesive planning and training for a NATO contingency

Yet, in terms of dollar value, today's Army Reserve has on hand only a third of the equipment it would need to go to war. The end strength of the Army Reserve troop program units continues to grow significantly each year since the low point was reached in 1978. Nevertheless the Army Reserve is still 45,000 Soldiers short of its peacetime manning levels and more than 80,000 Soldiers short of the personnel needed to fill existing units in wartime. The Individual Ready Reserve, the pool of pretrained manpower, is conservatively estimated to be 250,000 short of the demands that would be made on it within 90 days after the mobilization order is given.

Although the Total Force policy recognizes the roles of the Reserve Components and their importance, funding restraints are also a fact of life. When applied to aviation units, Total Force generally means more multicomponent training exercises. It also means that flight training quotas have remained essentially adequate, that funding has been maintained for additional flight training periods and that the ever increasing cost of fuel has been covered.

On the other side of the equation, we find that the very factors which have produced a pool of experienced pilots point to challenges in the future, for the average age of the Army Reserve pilot is about 37 years.

The Inventory. Another serious concern in the Army Reserve is the nature of the inventory of fixed wing aircraft. Most are obsolete. The Army Reserve has been issued only a few U-21 Utes, and the average age of the fixed wing fleet is about 22 years. Under normal conditions, the Army retires aircraft at that age.

Army Reserve aviation focuses on combat support missions, such as the tactical insertion of troops and supplies or command and control. Consequently, the UH-1H Huey and the OH-58 Kiowa are the backbone of the fleet.

The Army Reserve's 305 Hueys are located mainly in combat support aviation companies, which have the mission of moving troops in the combat zone and providing logistical support to ground elements. The Huey also is the aircraft used by the Army Reserve's 11 helicopter medical detachments.

Two Army Reserve medium helicopter companies are equipped with 48 CH-47A Chinooks. In wartime, these aircraft would be assigned to corps general support aviation battalions with the capability to lift up to 2,216 combat troops or 587 tons of cargo a day.

There are 105 OH-58As, rounding out the Army Reserve's 458 rotary wing inventory. These Kiowas are used mainly for command and control or observation missions.

Training. Army Reserve aviation units are integrated into the Total Force in a variety of ways. They have relationships with Active Component units

The Army Reserve Inventory:
UH-1 (above)
U-21 (right)
OH-58 (below left)
CH-47 (below right)

through innovative programs. One such program, CAPSTONE, is a vehicle whereby U.S. Army Forces Command is welding together the Total Army by using cohesive planning and training for a NATO (North Atlantic Treaty Organization) contingency. The CAPSTONE units will, insofar as possible, train with their parent units and will maintain close contact for planning and training.

Army aviators generally agree that the aircrew training manual (ATM) took Army Aviation out of the seat-of-the-pants era of flying and into the latter half of the 20th century. ATMs are being used throughout the Army Reserve and have been since early in the program. Commanders, instructor pilots and crews indeed also agree that fully proficient aviators have made Army Training and Evaluation Programs more meaningful too. Consistent with training in the Total Army, these programs are fully operational in the Army Reserve. And, they are paying great dividends in terms of training readiness.

The Army Reserve also benefits from Military Assistance to Safety and Traffic (MAST) participation. MAST missions are not only valuable training to the crews involved, but also make a humanitarian contribution to the civilian community and increase the Army Reserve's visibility within the community. For those who participate, nothing is quite as rewarding as performing real, life-saving missions.

In recent years, Army Reserve aviation units have frequently participated in joint component exercises in addition to supporting Army Reserve and National Guard units during annual training. For example, two medium helicopter companies might be assigned to support the opposing force, such as in Brave Shield 80. Army Reserve units also operate with Active Component units as did the 300th Combat Support Aviaiton Company from Grand Prairie, TX, and the 190th Medium Helicopter Company from Olathe, KS, in REFORGER (Return of Forces to Germany) 80.

Army Reserve pilots now log between 60 and 90 flight hours annually to meet ATM requirements. In addition to inactive duty for training drills during the year and a 2-week session of annual training, flight crews are authorized 24 additional flight training periods per year which are at least 4 hours long and average 1½ hours of flight time.

The Pilots. The majority of Army Reserve pilots are Vietnam veterans who received their initial flight training between 1965 and 1973. They are approaching an average age of 37 and some have more than 3,000 flying hours. In fact, about 95 percent of the 1,400 pilots assigned to troop units are at least age 30.

The nature of this mature experienced aviation force has undoubtedly been a factor in the excellent safety record amassed by Army Reserve aviation units. As our current pilots reach retirement age or as they are promoted out of flight status, new pilots will have to take their places. Yet through fiscal year (FY) 1982, the Army Reserve has a quota of only about 70 initial entry rotary wing students at the Aviation Center at Ft. Rucker, AL. Although this number may improve in FY 1983, Army Reserve aviation units will soon have to rely more heavily on the Individual Ready Reserve to replace aviators lost to promotion and retirement.

As of June 1981, we had 97 percent of our aviators and 94 percent of our enlisted people onboard, with enlisted military occupational specialty (MOS) qualifications being at the 69 percent level. Three years ago we had 100 percent of our aviators and 75 percent of our enlisted people. Enlisted MOS qualification was at the 68 percent level then too, but the turnover rate has changed.

The Funding Issue. The replacement of older, fixed wing aircraft in the Army Reserve is an issue closely tied to Active Army Aviation funding. The Army Reserve is authorized 51 fixed wing aircraft for command and control. In addition 11 RU-21s are authorized for the 138th Army Security Company for its unique electronic warfare mission.

The Active Army's reduced rate of procurement of the C-12 Huron has delayed the transfer of some U-8 Seminoles and the U-21s to the Army Reserve. As a result, we must rely heavily on the now obsolete U-3s (Cessna 310s) and they are an average of 24 years old. These aircraft could not be used in wartime, and it would be necessary to conduct transition training into another aircraft for the U-3 pilots.

Despite the age of its aircraft, the Army Reserve has achieved high maintenance standards. The wide dispersion of the Reserve's flight facilities tends to put aviators and maintenance personnel at a disadvantage, but they have overcome this and have done an excellent job of maintaining aging aircraft and equipment.

The Immediate Future. A few years ago, under contract to the Department of Defense, the Rand Corporation conducted a survey of the Army's Reserve Components. One finding was that two-thirds of those not reenlisting in the Army Reserve gave as a reason that Reserve participation interfered with either their work or family obligations. This emphasizes the importance of both family and employer support to members of the Army Reserve who through their dedicated service are contributing significantly to our national security.

Within the next 5 years, a large number of our people who became pilots in 1965 and 1966 will become eligible to retire; others will be promoted out of operational aviation billets; and some will ask to trade their commissions for warrants so they can continue to fly. The Army Reserve is permitted 150 excess aviators. One of the controlling factors is, of course, the number of aircraft on hand to support training.

The Army Reserve is currently short 68 helicopters, not including the maintenance float. Although a few UH-60 Black Hawks are anticipated for the Army Reserve for cross training, the principle helicopter in the Army Reserve will be the Huey until the turn of the century. CH-47As will be replaced with CH-47C models during the coming decade and under current plans we will receive the "D" model Chinook in the 1990s.

Army Reserve aviation personnel are dedicated members of the Total Army. They work hard and train hard. They often put duty above personal and family convenience. Army Reserve aviation personnel represent an invaluable asset to our country.

FORSCOM's Role In USAR Aviation

Major Ronald R. Tamaccio
USAR Aviation Advisor
Headquarters FORSCOM
Fort McPherson, GA

WHAT PART DOES the U.S. Army Forces Command (FORSCOM) play in the operation of the U.S. Army Reserve (USAR) aviation program? Perhaps the best way to answer that question is to examine the commanding general's guidance regarding FORSCOM's purpose and mission. Our purpose is clear: *TO PREPARE ARMY FORCES FOR MOBILIZATION AND COMMITMENT IN SUPPORT OF NATIONAL POLICY.* We have a fourfold mission:

1. *Organize the force* and plan for its mobilization and commitment to perform wartime and other missions.
2. *Support the force.*
3. *Train and motivate* individuals and units to perform assigned missions.
4. Provide an environment that will *attract and retain* the people required to sustain the force.

FORSCOM's purpose and mission couldn't be more simply stated, but fulfilling our purpose and accomplishing our mission is a major undertaking, requiring considerable resources, extensive manpower and dedicated management. Let's examine each of the four aspects of our mission as it relates to the USAR aviation program.

First we must *organize* the force. The primary goal here is to ensure complete integration of Reserve Component (RC) units with the Active Component (AC). Implementation of the CAPSTONE Program and our AC/RC Affiliation and Partnership concepts have taken us a long way toward achieving that objective. Simply stated, CAPSTONE is the task organization for combat of the Total Force (AC, USAR and the Army National Guard). We analyzed the mission and the capabilities of each RC combat unit, made a determination as to how that unit could be most effectively used in battle and aligned it with the most appropriate major AC command. As a result, each of our USAR TOE (table of organization and equipment) aviation units now has a combat mission and each knows where and with whom it will fight upon mobilization. The Affiliation and Partnership programs supplement CAPSTONE by binding each tactical RC unit with an AC unit of similar structure and mission to facilitate regular contact and promote an information "pipeline" to ensure complete assimilation of new doctrine, tactics, equipment and weapons.

Second, we must *support* the force. Such programs as full-time manning (FTM), full-time unit support (FTUS) and the Individual Ready Reserve (IRR) aviator training program, when completely implemented, will greatly facilitate our transition from peace to war by providing our commanders with reliable, well trained mobilization assets and current and qualified aviators. Our staff constantly endeavors to provide modern equipment and facilities to the USAR. For example, by the end of fiscal year (FY) 1982, every Army Reserve unit should have on hand 100 percent of its authorized UH-1H Hueys, with several maintenance float aircraft (ORF) being available for the first time. I won't get into the Army Reserve's aircraft procurement situation here because Major General William R. Berkman has done a good job of that in his article beginning on page 2. In the avionics area, our T-42 Cochise, U-8 Seminole and U-21 Ute airplanes are undergoing modifications which

photograph by Robert C. Holt III

include "state of the art" equipment and, in some cases, weather radar and autopilot.

More modern facilities for our ASFs/AFAs (Army Support Facility/ Aviation Flight Activity) are being identified, planned and programed into future budget estimates; and staffing criteria are being reviewed to ensure we are providing appropriate full-time manpower to aid the Reservist. Activation of the National Training Center (NTC), Ft. Irwin, CA, has a very high priority for resources and, when fully operational, will provide an excellent training area for Army Reserve tactical units. Finally, we intend to scrutinize the FY 1982 Command Operating Budget (COB) to ensure every dollar committed to support aviation operations is obligated to that same end.

Third, we must *train* and *motivate* individuals and units to perform their mobilization mission. No one can dispute the importance of optimum proficiency in both individual and collective tasks in aviation operations. Consequently, FORSCOM devotes a considerable amount of time to ensuring the maximum training benefit is derived from the available resources. We believe the key to success here is to train, develop and use our junior leaders, especially our noncommissioned officers. They must know their job thoroughly, know their subordinates' jobs as well, and be given the responsibility and authority to ensure acceptable performance and maximum productivity during the multiple unit training assemblies (MUTA), additional flight training periods (AFTP) and annual training (AT).

Since the unit's flying hour program is the foundation for its training program, we intensively manage it. Our USAR aviation advisor reviews requests from major U.S. Army Reserve Commands (MUSARC) and allocates the available hours to them. He monitors their accomplishments and where necessary reallocates to maximize use. We review the aviation resource management survey (ARMS) reports from the continental armies (CONUSA) and take appropriate actions to assist those commands to correct deficiencies and improve training. We provide regulatory guidance to the CONUSA and MUSARC commanders regarding the conduct of ARMS; and we will soon field a FORSCOM Reserve Component ARMS (RCARMS) team.

We have recently completed a structural reorganization of the Army Readiness and Mobilization Regions (ARMR) that includes a centralized

Major Dick Crossland

SP5 Don Espeland

SP5 Don Espeland

SP4 John Wright signals takeoff (above)

The most difficult task in hooking is placing the donut over the Chinook's hook (left). The rigger protected by goggles and acoustic earmuffs must hit a moving target while buffeted by the heavy prop wash of the CH-47's 59-foot rotor blades

Army Reserve troops and their active duty instructor (inset) prepare to sling-load cargo to an Army Chinook helicopter as part of the annual training

aviation readiness training (CART) team to improve the training assistance available to unit commanders. The CART team will provide a reservoir of expertise in a wide range of aviation subjects, i.e., maintenance, operations, training and tactics. Any or all of these experts will be available to aviation unit commanders to assist them in producing a combat-ready USAR unit.

Finally, we attempt to provide an environment that will *attract* and *retain* the aviation expertise we need in the USAR. This is perhaps our most challenging task. We highlight the vital role of the Reservist within the Total Force and emphasize the unit mission in our training goals in hope of increasing "esprit de corps." Our staff works closely with the Reserve Component Personnel Administration Center (RCPAC) in St. Louis, MO, to develop programs such as the officer retention program and the inservice recruiting program for enlisted personnel. The intent of both programs is to ensure maximum accession to the Army Reserve from departees from active duty, prior to their release, if at all possible.

The IRR Aviator Training Program when more clearly defined will, in addition to accomplishing its primary mission, provide a source of aviators to fill troop unit vacancies.

FORSCOM develops milestones and nominees for overseas training by Army Reserve aviation units and encourages their participation in REFORGER exercises. We nominate participants in the myriad of exercises (JTX, FTX, etc.) conducted annually. The purpose of all of these programs is to retrain qualified personnel by affording them the opportunity to function as a unit in as realistic a training environment as is possible. We encourage every unit to take full advantage of the authorization to maintain 150 percent overstrength among aviators. This policy not only permits the unit to have readily available a pool of fully qualified and current replacements for any unit vacancy which may occur during the training year, but also reduces the post-mobilization training requirement for those aviators in the pool prior to their deployment. In addition, we support the policy of permitting an individual to continue to serve in a position which is supposed to be filled by a person of the next lower grade (i.e., a major serving in a captain slot) as part of a troop unit overstrength program.

Each program has one common goal—to provide an environment that will attract and retain the people required to sustain the force.

Now that we have discussed each aspect of our mission, we can summarize our efforts by means of the simple guidance contained in the FORSCOM four-step.

1. Set objectives.
2. Provide resources.
3. Coach subordinates.
4. Measure results.

Above all, we realize that the ultimate success of our mission depends on the contribution of the drilling Reservist. Were it not for his or her dedication to duty, coupled with the under standing and support of the Reservist's family, we would not be prepared for mobilization.

USAR Aviation in the Sixth U.S. Army

LTC(P) Terence M. Henry
Aviation Officer
Sixth U.S. Army

Professional Proud and Prepared

THE RESERVE Component (RC) aviation in the Sixth U.S. Army is as broad and diverse as the 15 western states in which it is located. U.S. Army Reserve (USAR) units vary from a small medical ambulance detachment in Salt Lake City, UT, to a combat support aviation company in Los Alamitos, CA. Although the missions differ, from those flown by RU-21 Utes in Washington to those assigned the CH-47 Chinooks in Kansas, Army Reserve aviators are bound by a common thread of dedication to preparedness should mobilization occur.

Five aviation support facilities and activities manned by full-time technicians maintain the records and provide the day-to-day support and continuity for more than 225 aviators and about 100 aircraft spread over almost 1.5 million square miles. The facility is the hub around which the aviation in an Army readiness command revolves.

Army Reserve aviation, like Active Component aviation, is a blending of people and machines. From an aviator experience point of view, the Sixth Army USAR aviator's average exceeds 2,500 flying hours each. A high percentage of the aviators are combat veterans and many also fly as their primary civilian vocation. The bottom line is no shortfall in individual skill, ability and experience.

The machine side of the equation, however, provides a true challenge and again underlines the diversity in the CONUSA's (the numbered armies in the Continental United States) aviation program. Army Reserve aircraft are generally the senior citizens of the Army's inventory, as discussed in Major General William Berkman's article beginning on page 2. Still a professional, dedicated group of maintainers provide the tender loving care necessary to keep this "geriatric fleet" in the air.

Sixth Army USAR aviators aggressively tackle realistic training with an eye toward commitment to their assigned wartime missions. Despite the difficulties of members breaking loose from full-time civilian careers, most units vie for the opportunity to take part in prolonged maneuvers with their active counterparts. For example, last year's RC aviation unit of the year undertook the REFORGER challenge in the Federal Republic of Germany. The 190th Aviation Company (Med Hel) attained 100 percent mobilization readiness, deployed to Germany and flew more than 150 hours in support of the field training exercise Certain Rampart 80.

On a more continuous basis, the 343d and 321st Medical Detachments, located at Hamilton AFB, CA, and Salt Lake City respectively, continually train

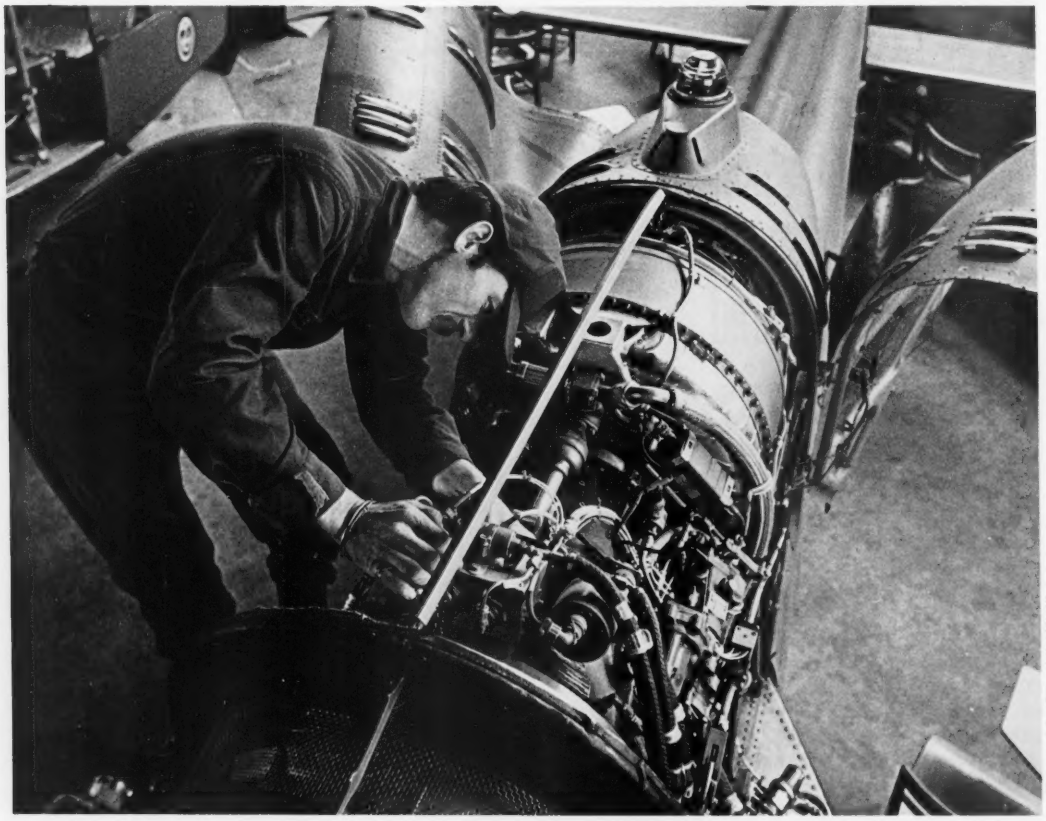
aircrews and medical service people for day and night, adverse weather, all terrain medevac support missions.

Given the competition for the RC aviator's time (civilian employment, large geographic distances from home to unit, etc.), collective training at unit level is difficult to conduct. The units tackle the problem by using additional flight training periods to accomplish individual and crew training, leaving the monthly unit training assemblies free to key on threat oriented tactical training at unit level. Reinforcement is gained during the combined arms training normally accomplished during the 2-week active training period.

Regardless of the effort, overall levels of unit proficiency in night training, gunnery, multiple aircraft operations, etc., can and must still be improved. There is no question that given the leadership and individual aviator proficiency found in Army Reserve units, outstanding collective skill levels are obtainable in a short training period upon mobilization. The question is, of course, will such a training period be available?

Although comparisons to Active Component aviation units can be misleading, most Army Reserve aviation units set the example for the benefits accruing to reduced personnel turbulence. The fruits of unit cohesion are most discernible in aircraft maintenance where key personnel develop true expertise by spending ample time getting to know their people, their jobs and their equipment.

Approximately forty percent of the Army's total aviation resources are found in the Army Reserve and Army National Guard. USAR aviation provides a vital portion of those standby resources. Reserve aviation adequately manned, equipped, trained and ready to go could well decide the outcome should our country find itself on some future battlefield. Although the Sixth Army USAR units and missions differ greatly, we are ready and you can rest assured that the common thread of dedication and professionalism which I talked about at the start of this article will keep our RC aviation units "Above The Best" in peace or in war.



photograph by Robert C. Holt III

Where are the EXPERIENCED Army Aviators?

Mr. Rush Wicker
Directorate of Combat Developments
U.S. Army Aviation Center
Fort Rucker, AL

STATISTICS SHOW that the Reserve has more flying experience than its Active Army counterparts. This experience is enhanced by the large number of combat veterans. In addition to having combat experience, Army Reserve units are filled with equally experienced enlisted people to maintain the helicopters and accomplish other functions of the unit. The availability of seasoned personnel has contributed significantly to the achievement of the high standards of performance of Reserve units.

But, Army Reserve units have not always been so fortunate. Prior to the Vietnam War, Reserve units were staffed with people who had little or no active Army experience. Many units that were called to active duty during the Korean War were

CW2 Bolla of the 281st Aviation Company, Cahokia, IL, inspects a tail rotor

not qualified to perform their missions. As a result, adverse opinions of Reserve Component forces were formed. The reasons for their poor performance are understandable. As time has passed, priorities have changed and so have today's Reserve forces.

Many of today's Army Reserve units are the best trained units within the armed forces. The achievement of this has come about as a result of improvements in the following areas.

Training. The availability of up to date training literature, training aids and facilities has improved the training environment. Publications such as the Soldiers Manual, Aircrew Training Manual, training circulars, and the latest field manuals have helped improve the skill levels of the individual, team and unit. These publications, when supplemented with visual and audio training aids such as 35 mm slides, video tapes and simulation devices, have contributed significantly to an even more effective training program.

Testing and Evaluation. The performance evaluation standards for individuals, teams and units are the same for both the Reserve and Active Army units. Common skill qualification tests (SQT) administered to Army Reserve enlisted people require achievement of the same minimum score as Soldiers of the same MOS in the Active Army. Additionally, Army Reserve units are administered the Army Training and Evaluation Program (ARTEP) to determine their ability to perform the assigned unit mission.

Annual Training. Many Army Reserve units conduct annual training with the Active Army unit with which they will go to war. This training provides for cohesion and interface between the two units, and develops a level of mutual respect. Additionally, the mission oriented training scenario enhances the capability of the unit to perform its mission.

Full-Time Technicial Programs. The implementation of the full-time technician program, whereby some members of the unit work full time for the unit, has significantly improved unit readiness. The program allows key personnel such as the company commander and first sergeant to serve active duty tours as members of the unit. This also contributes to unit efficiency.

Attitude. Each of the factors discussed above has contributed to the improvement of the combat readiness of Reserve units; however, the most significant factor that has affected the Army Reserve is the espirit of the Reservists and its relationship to the civilian community. Today's Army Reservists are proud of their affiliation with the Army Reserve, and because of this the civilian community has become aware of—and has demonstrated strong support of—the Reserve. Improvements in training, pay and benefits have contributed greatly to achieving this positive attitude demonstrated by the Reservists.

The answer to the title of the article can be found in the Army Reserve. These aviators represent an important asset to the security of the United States. Reservists realize the Army Reserve must be prepared to reinforce the Active Army to deter the enemy, wherever and whenever hostility may arise.

CW2 Rudy of the 281st Aviation Company completes a preflight inspection of the helicopter's exterior

"Hangar Talk" is a quiz containing questions based on publications applicable to Army Aviation. The answers are at the bottom of the page. If you did not do well, perhaps you should get out the publication and look it over.

AIRMAN'S INFORMATION MANUAL (AIM)
July 1981

CW2 Gary R. Weiland
Directorate of Training Developments
U.S. Army Aviation Center
Fort Rucker, AL

1. What is the usable range (nautical miles) of a nondirectional beacon classified as a compass locator?

A. 10 B. 15 C. 25 D. 50

2. If the rotating beacon at an airport is not operating during daylight hours, aviators may assume that weather conditions are VFR (visual flight rules).

A. True B. False

3. If the sky condition or ceiling and/or visibility are omitted from an Automatic Terminal Information Service (ATIS) broadcast, the weather is:

A. Unknown
B Less than 3,000′ ceiling and 1 mile visibility
C. At/or better than 3,000′ ceiling and 1 mile visibility
D. At/or better than 5,000′ ceiling and 5 miles visibility

4. Unless another transponder code has been assigned by air traffic control (ATC), military pilots operating VFR or instrument flight rules (IFR) within restricted/warning areas should adjust their transponders to which code?

A. 0000 C. 4000
B. 1200 D. 7500

5. Upon arrival at an airfield, when should an aviator change to the ground control frequency?

A. Just prior to touchdown
B. After touchdown
C. Once clear of active runway
D. Only when instructed by tower

6. ATC authorization to "MAINTAIN VFR ON TOP" permits aviators on IFR flight plans to fly above, below or between cloud layers.

A. True B. False

7. You are tracking inbound to a VOR (VHF omnidirectional range) on the 240° radial and have been instructed to hold northeast on the 080° radial. Which procedure should be used to enter holding?

A. Parallel
B. Teardrop
C. Direct

8. To avoid wake turbulence when landing on the same runway behind a departing large aircraft, aviators should land:

A Well prior to departing aircraft's rotation point
B. At the departing aircraft's rotation point
C. Beyond the departing aircraft's rotation point

9. Since migrating waterfowl tend to _____when closely approached by aircraft, pilots are warned not to fly _____migrating flocks of swans, geese or ducks.

A. scatter.....near
B. dive.....directly under
C. climb.....directly over

10. Aviators flying VFR over noise-sensitive areas (national parks, wildlife refuges and wilderness areas) should not fly less than how many feet above the surface (weather permitting)?

A. 500 C. 1,500
B. 1,000 D. 2,000

AIM ANSWERS

1. B, (para 10d and 12g(1))
2. B, (para 52d)
3. D, (para 161d(note))
4. C, (para 170e(3))
5. C, (para 243)
6. A, (para 266f)
7. B, (para 347e(3)(b))
8. A, (para 545b(4))
9. B, (para 561b)
10. D, (para 564)

HELP WANTED—**MOS 93J (ATC RADAR CONTROLLER)**

IF YOU ARE interested in an inspiring and challenging job in the Army, then 93J (Air Traffic Control Radar Controller) is for you. The Army is experiencing a shortage of qualified personnel in MOS 93J and the MOS is currently open for reclassification into all skill levels.

Just what does a 93J do? The basic summary in AR 611-201 states, "Supervises and controls air traffic control operations, employing radar to provide departure, flight and approach control services."

a. At skill level 1 (E1-4) personnel provide terminal radar approach control and/or ground controlled approach (GCA) services for aircraft. This individual initiates and issues air traffic control (ATC) clearances, advisories and control information to departing, en route, arriving and holding aircraft. Other duties and responsibilities include coordinating en route control with other ATC facilities, alerting aviators of pending hazards, providing approach guidance to aircraft conducting instrument approaches, plotting direction and speed of aircraft movement and applying Federal Aviation Administration (FAA) and Army air traffic rules and regulations.

b. At skill level 2 (E5) an individual will be required to perform all the duties in skill level 1 and provide technical guidance to lower grade personnel.

c. At skill level 3 (E6) the duties entail performing as a shift supervisor or facility chief at a fixed base or tactical site.

d. At skill level 4 (E7) an individual serves as ATC facilities chief for a terminal radar approach control and/or GCA facility.

e. At skill level 5 (E8) an individual supervises all ATC operations for two or more smaller ATC facilities or one large facility.

Although the above is just a brief description of the MOS 93J job description, there are many other aspects of the job required to be a successful ATC Radar Controller. These are contained in the detailed job description outlined in AR 611-201.

MOS 93J requires mandatory formal training. The school is located at Ft. Rucker, AL, is 16 weeks long, and incurs a 15-month service obligation. The scope of the school is to instruct the student in air traffic control of VFR (visual flight rules) and IFR (instrument flight rules) air traffic for award of the FAA certificate. Requirements for the school include a standard score of 100 or better in aptitude area ST or GT. No security clearance is required for the school or the MOS itself. All individuals must possess a class II flight physical for the school and an FAA certification for ATC duties and then be reexamined annually to retain the MOS.

MOS 93J is currently authorized selective reenlistment bonus (4A, B, C) effective 18 August 1981. This MOS is not currently in the BEAR (Bonus Extension and Reenlistment) program; however, this is subject to change in the future. Currently MOS 93J is authorized in many overseas commands to include Hawaii, Alaska, Europe and Korea. These different locations offer varied duty assignments and reenlistment options for individuals. Along with these various duty assignments a Soldier would either be assigned to a tactical or fixed site. The tactical unit is a deployable unit which moves with another unit to support its ATC mission with portable equipment. A fixed facility is one that is not deployable and normally is the local airfield of an installation.

MOS 93J is demanding of the Soldier and critical to the Army. As stated before, it is currently below strength Armywide and is open at all grades for reclassification. If you meet the prerequisites and are interested in a demanding Army career with challenge, then consider MOS 93J (ATC Radar Controller). If you have a reenlistment option available, contact your reenlistment counselor. If requesting reclassification, contact your local MILPO (military personnel office) or training office for the proper procedures.

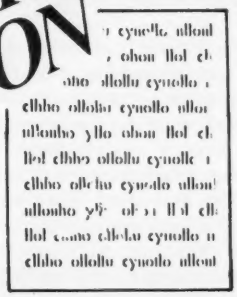
LTC Richard L. Naughton
Chief, Trans/Avn/Maint Branch

and

SSG (P) Gregory M. Huggins
Career Advisor, Aviation Section
U.S. Army Military Personnel Center
Alexandria, VA

Captain Hugh Gibbs
Training Analysis & Design Division
Directorate of Training Developments
Fort Rucker, AL

1982 Army Aviation ANNUAL WRITTEN EXAMINATION



The 1982 Army Aviation Annual Written Examination (AAAWE) was shipped from Ft. Rucker, AL, to your unit during October 1981. The new examination is essentially in the same format as the 1981 examination with some minor changes.

The process of tying examination questions to the aircrew training manual (ATM) began in 1977 and was continually refined and updated as the ATMs were finalized. Now that the ATMs are in final form, the 1982 rotary wing examinations are closely tied to ATM tasks and standards. The 1982 fixed wing examinations, with the exception of a few questions, also are closely associated with their respective ATMs.

Volume 1 of the Reference Data Booklet (RDB) has been reprinted for 1982 because of changes in DOD Flight Information Publications (FLIP). Volume II contains indexed extracts of field manuals, regulations and other appropriate publications. Change 3 to Volume II of the RDB has been issued for the 1982 examination.

A major change in the 1982 examination is the equipment recognition portion. This portion is closed book and no outside references may be used.

We consider the AAAWE to be an excellent evaluation tool, and test control officers (TCOs) should analyze local examination results and provide information, as desired, to commanders. If an aviator missed several questions in one subject area (e.g., instruments, threat, or weight and balance), it may indicate that further individual training is needed. Likewise, if several aviators show a particular subject weakness, further unit training may be needed. Commanders should be innovative in using results to improve individual and unit proficiency.

Every effort has been made to produce a relevant and correct examination through validation and the aid of subject matter experts. We hope that you will find the 1982 AAAWE to be both challenging and informative.

As always, the U.S. Army Aviation Center welcomes your comments and constructive criticism. Please provide feedback to Commander, USAAVNC, ATTN: ATZQ-TD-TAD-TD (AAAWE), Ft. Rucker, AL 36362, or call us at AUTOVON 558-5385/3889. Good luck!

REPORT TO THE FIELD

Directorate of Evaluation/Standardization

DURING OUR VISITS to aviation units this past year, aviators have brought up some pertinent points that are worthy of being passed on to ***Aviation Digest*** readers. The following is a typical subject:

We all use aircrew training manuals (ATMs) for descriptions of specific maneuvers when we participate in training. Does this mean that there is only *one* acceptable way of performing a maneuver or task?

The CH-47 Chinook ATM describes a shallow approach to a running/roll-on landing but does not address shallow approaches with termination at a hover. Does this mean that the Chinook cannot perform a shallow approach to a hover? The same ATM describes ground controlled approach (GCA). The GCA angle is about 3 degrees and is a shallow approach. Does this mean that a CH-47 cannot terminate a GCA at a hover? In the most recent UH-60 Black Hawk ATM, a VMC (visual meteorological conditions) approach is described as one with "an approach angle which allows safe obstacle clearance to touchdown." Is the UH-60 restricted from a "normal" approach?

The operator's manuals for these two helicopters place no restrictions on approaching to a hover at any angle.

Since one publication describes a normal and steep approach; one describes shallow, normal and steep approaches; and another contains only VMC approach procedures, is there not a contradiction? Difference, yes; contradiction, no.

The Commander's Guide (TC 1-134) tells us that ATMs provide guidance for the establishment of aviator initial qualification, refresher, mission and continuation *training* programs. The preface of each ATM states the purpose of the publication is for *training.*

It is not possible for training to include every possible variation in mission, terrain, weather or aircraft configuration. Therefore, some maneuvers have been selected that, if performed to established standards, will indicate that other closely related maneuvers may be executed without aviators undergoing training in that specific task. Consider the CH-47 shallow approach to a running/roll-on landing. It not only prepares an aviator for a landing on a prepared surface when hover is either not possible or desirable but is also valid training for emergency procedures. If the aviator can terminate a normal approach to a hover and execute a shallow approach to a running landing, it can safely be assumed that he/she can terminate a shallow approach to a hover.

We must also realize that operator's manuals define the entire operating envelope for safe operation. Training maneuvers may only use a very small portion of a very large flight envelope. This does not mean that we are restricted from using the remaining part of the flight envelope when missions require us to fly a maneuver that is not specifically covered in an ATM. An example of a variation between the ATM and operator's manual is the instrument takeoff (ITO) procedures for a UH-1H. The ATM tells us to use the "power necessary to establish appropriate takeoff climb; 5 pounds of torque above that required for a 5-foot hover." The -10 says not to attempt an ITO "with less than hover out-of-ground-effect capability," and during takeoff "increase collective. . . until takeoff power is reached." The -10 calls for a minimum acceptable value OGE (out-of-ground-effect) hover of about 5 pounds above 5-foot hover torque at 7,500 pounds and 8 pounds above 5-foot hover torque at 9,500 pounds (figure 7-5, TM 55-1520-210-10). Additional torque above the minimum value (not to exceed the maximum limit) may be used as required. Some aviators may interpret the ATM to mean that instrument climbs must be made with no more than 5 pounds above hover torque. This may be acceptable for training; but when flying the Federal Airways System, it is a good policy (much appreciated by ATC) to climb at an optimum rate to within 1,000 feet of assigned altitude. After all, 500 feet per minute ties up a lot of airspace unnecessarily when the aircraft is capable of 1,200 feet per minute or more rate of climb.

Aviators must not unnecessarily restrict themselves to one operating condition because it is the only one used in training. Don't be misled by the idea that "if the ATM does not say do it, it cannot be done." Aircrew training manuals, operator's manuals, checklists and other aviation literature are provided to optimize the operation of Army aircraft in order to perform a variety of missions and should be used to complement each other.

DES welcomes your inquiries and requests to focus attention on an area of major importance. Write to us at: Commander, U.S. Army Aviation Center, ATTN: ATZQ-ES, Ft. Rucker, AL 36362; or call us at AUTOVON 558-3504 or commercial 205-255-3504. After duty hours call Ft. Rucker Hot Line, AUTOVON 558-6487 or 205-255-6487 and leave a message

REPORTING FINAL

Late News From Army Aviation Activities

FROM FORT RUCKER

CONFERENCE OPENS. The 1981 Policy Committee Meeting/Training Symposium was opened on 16 November at the U.S. Army Aviation Center, with several speakers stressing the need for Army Aviation to sell itself.

Major General Carl H. McNair Jr., commander of the Aviation Center, welcomed the participants to the second annual gathering of what is two separate but interfacing conferences. The week-long function is set up to enable subject matter experts and interested parties from major Army commands and Department of the Army staff agencies to discuss aviation and standardization issues prior to the Policy Committee meeting, which was convened at 1300 hours on 18 November. General McNair told the group that while we must push our product, ground commanders must pull it, using aviation assets more and more in combined arms training.

General Robert M. Shoemaker, commander of U.S. Army Forces Command, told the group that when considering issues at the conference to bear in mind that the ultimate goal is winning on the battlefield. He stressed the need to teach the officer corps how to use Army Aviation effectively.

In the keynote address, Major General Guy S. Meloy III, director of training, Office of the Deputy Chief of Staff for Operations and Plans, Headquarters Department of the Army, stressed that both Army aviators and nonrated officers must sell Army Aviation. He said, "We must develop a buyer's market so that you (in Army Aviation) are being competed for."

Brigadier General Ellis D. Parker, Army Aviation officer, Office of the Deputy Chief of Staff for Operations and Plans, Headquarters, Department of the Army, was chairman of the Army Aviation Policy Committee portion of the conference. He echoed the Army Aviation selling themes of the other speakers and cited the strong support that Army Aviation receives from Army Chief of Staff General Edward C. Meyer; General John W. Vessey Jr., Vice Chief of Staff of the Army; Lieutenant General William R. Richardson, the Army Deputy Chief of Staff for Operations and Plans; and Lieutenant General James H. Merryman, the Army Deputy Chief of Staff for Research Development and Acquisition.

Watch future issues of the ***Aviation Digest*** for more comprehensive coverage of the conference. **(AD)**

Great Record . . . James W. Tomberlin, an instructor pilot with Doss Aeronautical Services, Inc. (DASI), since 1970, receives a Special Achievement Award from Fred H. Farner, vice president of DASI and the general manager of the DASI operation at the Aviation Center. He was cited for logging 5,000 consecutive flight hours without accident or helicopter damage by himself or any of his solo students. Tomberlin has logged 5,500 hours in the TH-55 and 2,300 hours in the UH-1 helicopter in his 25 years as a pilot, both in the Army and as a civilian.

photo by SP4 Denise Starr

Euro-NATO Symposium. Military and civilian representatives from five European nations were at the Aviation Center from 2 thru 6 November to attend the seventh Euro-NATO Basic Helicopter Training Symposium, hosted by the U.S. Army Aviation Center.

Delegates from Germany, the Netherlands, Norway, Denmark and the United Kingdom along with representatives from the Department of the Army, the Training and Doctrine Command and the Aviation Center discussed details of the program under which about 85 European students will train at Ft. Rucker during fiscal year 1982.

In his welcoming remarks, Aviation Center commander MG Carl H. McNair Jr., stressed the importance of Army Aviation to the commander on the ground, and the keen sense of appreciation for this role by our Euro-NATO Allies.

In addition to the discussions, delegates met with their students, toured flight simulator and classroom facilities, and participated in tactical and night vision goggle flights. **(DOTD)**

REPORTING FINAL

Late News From Army Aviation Activities

USAARL Gets New Home. The U.S. Army Aeromedical Research Laboratory (USAARL) at Ft. Rucker, AL, received the keys to its new 116,620 sq. ft. facility during ribbon cutting ceremonies on 6 November. Ground for the $7.8 million facility was broken on 2 May 1978. The new facility contains laboratories for sensory, biodynamic and biomedical applications research.

USAARL, one of nine laboratories of the U.S. Army Medical Research and Development Command, is internationally known in the field of aviation medicine.

photo by Deb Ellis

Helicopter Underwater Escape Training. Aviation crewmembers of the U.S. Army Aeromedical Research Laboratory completed a training exercise in the Navy's 9D5 Multi-Placed Ditching Trainer at the Naval Aviation School's Command, Pensacola, FL. Mr. John Kaufman, chief of standards at the trainer facility, says the USAARL crewmembers were the first Army unit to go through the training as a unit.

The ditching trainer isn't any specific helicopter, but it has a cockpit area containing a cyclic stick, an instrument panel, a center console and a collective stick in the full-up position. The trainer hits the water at 0 to 10 feet per second and can be rolled 180 degrees in either direction. The uncertainty of that roll after impact adds realism to the exercise.

The trainees wore flight suits, flight gloves, boots with steel safety toes, a mesh type inflatable jacket and a helmet. Each four-person group went through four simulated ditchings—two of those ditchings while wearing black-out goggles. Anyone who used the wrong procedure, or left the trainer from the wrong exit, had to go through additional ditchings until the procedures were done correctly.

Colonel Stanley C. Knapp, USAARL commander, stated that the training should in event of a ditching enable people to get their bearings when strapped in, upside down, and under water, and should give them a chance to escape.

(USAARL)

Correction. A couple of lines were dropped out of a portion of the October 1981 Reporting Final that dealt with the MOS 71P Flight Operations Coordinator Course. Since it would be involved to explain the corrections, the entire section is being reprinted below. The ***Aviation Digest*** apologizes for any inconveniences this error may have caused:

Soldiers, E-1 through E-5, can earn promotion points for completing Army Correspondence Courses/Subcourses. One point is awarded for each five credit hours completed. Further, completion of MOS related courses enhances the promotion potential of all grades.

The five correspondence courses listed at right are available for 71Ps. They train people in critical tasks for each skill level.

1,000 Safe Flying Hours . . . Chief Warrant Officer, CW3, William D. Barnes makes an instrument check before flight. Mr. Barnes was cited recently by Sikorsky Aircraft for flying 1,000 accident-free hours in the UH-60 Black Hawk helicopter. He is the first aviator at the Aviation Center, Ft. Rucker, AL, to receive this honor. Mr. Barnes is a standardization instructor pilot in the UH-60 Rotary Wing Instrument Branch, Cairns Division, Directorate of Training and Doctrine. Photo by SP4 Deb Ellis.

Quick Fix Helicopter In First Flight. The U.S. Army's new YEH-60A Quick Fix electronic warfare helicopter made its first flight at Sikorsky Aircraft's Stratford, CT, plant on 24 September

Title	Course number	Skill Level
• Flight Operations Coordinator Course	I51	1
• Air Operations Primary Technical Course MOS 71P	R24	2
• Air Operations Basic Technical Course MOS 71P	R27	3
• Air Operations NCO Advanced Course MOS 71P	S22	4
• Air Operations NCO Senior Course MOS 71P	T01	5

Soldiers may study a course individually or in groups. Anyone interested in furthering their career through the Army Correspondence Course Program (ACCP) should check with the training noncommissioned officer (NCO) or with their local education center. Course contents are listed in the Army Aviation Correspondence Course Catalog (DA Pam 351-20-3). To apply for enrollment a DA Form 145 must be completed and forwarded to: The Army Institute for Professional Development, U.S. Army Training Support Center, Newport News, VA 23628. For further information contact the ACCP Liaison Officer, P.O. Box J., Ft. Rucker, AL 36362 (AUTOVON 558-3703/3668).

(AD)

FROM CONNECTICUT

"Quick Fix" Makes First Flight. The U.S. Army's new YEH-60A helicopter made its first flight at Sikorsky Aircraft's plant in Stratford recently. The flight consisted of programed maneuvers to evaluate handling qualities and performance of the aircraft. Sikorsky test pilots John Dixson and Gary Kohler were at the controls.

The helicopter, called the "Quick Fix" Special Electronics Mission Aircraft (SEMA) by the Army, is a derivative of the UH-60A Black Hawk monitoring and jamming enemy radio communications signals.

The basic Black Hawk configuration has been modified to accommodate a 1,800-pound electronics package. Four dipole antennas are mounted on the rear of the fuselage and a deployable whip antenna is mounted underneath the fuselage.

The first flight aircraft, a pre-production prototype, was equipped with the dipole antennas and the deployable whip antenna. After 1 month of flight testing at Sikorsky's Stratford plant, the aircraft underwent additional modification prior to being flown to the Electronic Systems Laboratories, Sunnyvale, CA, where it will be fully instrumented and qualification tested. ESL is prime contractor for the "Quick Fix" program.

The "Quick Fix" project is managed by the Product Manager's Office, SEMA, St. Louis, MO, with support from the Signals Warfare Laboratory, Warrenton, VA, of the Army's Electronics Research and Development Command (ERADCOM), Adelphi, MD.

wire strikes – we're

not alone

U.S. ARMY SAFETY CENTER

AFTER AN INTENSIVE 10-month effort, a group of researchers completed an in-depth investigation of helicopter wire strike mishaps that occurred over a 10-year period, ending in CY 1979. Their findings and recommendations have been documented in a hefty, two-volume study that was published in October 1980—a study that is both revealing and highly significant.

10-year study

During the time period covered by the study, investigators found that 208 helicopter wire strike mishaps were reported for an average of 20.8 mishaps per year. Of the 208 aircraft involved, 88 (42 percent) were destroyed and the remaining 120 (58 percent) sustained substantial damage. The cost for these losses exceeded $11 million.

Including passengers and crews, 331 occupants were aboard the aircraft involved in these wire strike mishaps. Of this number, 37 (11 percent) sustained fatal injuries, 52 (16 percent) suffered serious injuries, and 86 (26 percent) received minor injuries. These wire strike mishaps accounted for about 10 percent of all the helicopter mishaps that were reported during the time period covered by the study.

Findings

Contrary to what we might expect, the study shows the average pilot involved in a wire strike mishap is an experienced aviator who has logged approximately 4,200 hours total flight time, more than 2,200 hours of which were in rotary wing aircraft. His average age is 34.7 years.

The study also reveals the majority (88 percent) of all reported wire strikes happen during bright, clear weather conditions that permit unlimited visibility, with most of the mishaps taking place at midday. In addition, the study shows that more than half of all wire strikes happen while aircraft are in cruise flight—usually at some altitude below 50 feet agl—and most occur where wire density is light. But perhaps the most important finding in this study is that the human element continues to remain the responsible agent for almost all helicopter wire strikes.

So what's new? The statistics and findings extracted from this study sound like a rehash of those found in other studies, reports, and articles prepared by the Army, some of which date back as far as 1958. What, then, makes this particular study any more revealing or significant than those published in the past? The answer lies in the simple fact that *no* Army aviators or Army aircraft were included in this study.

Instigated by the Helicopter Association International (HAI) and financed by the National Aeronautics and Space Administration (NASA), this study was conducted by the Human Resources Research Organization, better known as HumRRO. It was done in recognition of increased civil helicopter use, and it includes only those wire strike mishaps involving civil helicopters.

The resemblance between the data contained in this study and that accumulated by the U.S. Army Safety Center concerning Army wire strike experience is uncanny. Looking at this study is almost like viewing a mirror image of our own experience. This revelation, in turn, is precisely what gives this study its special significance. It performs a function much like that performed by the stranger who volunteered to train a mule so stubborn no one else could do anything with it. His first act was to pick up a nearby two-by-four and crack the mule over the head with it. His reasoning? Before you can teach it anything, you've got to get its attention.

This study does just that. It directs our attention to our own problems with wire strikes. While no one intentionally wants to hit wires, the fact remains that for the past 10 years Army aviators have been involved in these types of mishaps on the average of about once every two weeks.

Resolving the problem

As Army studies have pointed out, flying at a low altitude not required by the mission, operating an aircraft at an airspeed above 60 knots during terrain flight, and failure to plot the locations of known wires strung along a proposed route are three primary errors that can readily result in wire strikes. One OH-58 pilot put all three of these to work against himself when he willfully violated regulations and unit SOPs.

This pilot deviated from his original flight plan and descended below his minimum authorized altitude of 500 feet agl. Then, while at an airspeed estimated to be more than 60 knots, his aircraft hit wires. All three occupants were killed and the aircraft was destroyed. Why he deviated from his original flight plan will probably never be known. Maybe he wanted to take a closer look at something below, or perhaps he was simply trying to give his passengers a break from the monotony of a routine cross-country flight. As it turned out, he "broke" a lot more than just the monotony.

As might be expected, this particular mishap also conforms to the typical wire strike profile in that it meets the following criteria: The pilot was an experienced aviator, the flight was being conducted during daylight hours under VFR conditions, and the mishap occurred outside the training environment.

The human element

Human error is almost always involved in wire strikes. This error can result from an improper act willfully performed by the pilot or from one made unintentionally. For example, years ago an Army fixed wing pilot on an administrative flight landed his aircraft at a small airfield. Stretched across the runway, approximately midway, was a telephone cable. The pilot knew of the wire's presence. In fact, he had to taxi under it before departing the airfield. Yet, on takeoff, he struck the wire.

Obviously, psychological and physiological causes can often play a role in wire strike mishaps. Flying in clear weather on a sunny day over relatively open terrain virtually devoid of structures of any sort can lull crews into a false sense of security. First, they may feel the chance of wires suddenly appearing in their flight path is extremely remote; and second, under clear weather conditions, they are "almost" certain to see any wires in the area. Well, "almost" isn't good enough. One fatal Army helicopter mishap occurred under conditions identical to those described. The wires were present and the pilot did not see them. In fact, investigators flying the same route as that of the ill-fated aircraft could not see the high voltage powerlines suspended ahead of them—even though they knew their exact location.

The time of day, position of the sun, the types of wires, and the prevailing atmospheric conditions can all affect a crew's ability to spot wires.

Ingredients for prevention

The prescription for avoiding wires during flight requires a number of ingredients and demands the full cooperation of the commander, operations officer, unit aviation safety officers, unit IPs, pilots, and crew chiefs. The ingredients are:

1. SOPs and directives. Insure SOPs and directives relative to terrain flight reflect the safest procedures possible for the types of missions being flown. Detailed responsibilities for the pilot at the controls, pilot not at the controls, and other crewmembers should be specified.

2. Supervision. Provide adequate supervision to insure pilots adhere to established policies. All missions, including quick reaction missions, should be planned and all aircrews should know the plan. Supervisors should then insure that the flight is flown as planned and that deviations are a result of operational necessity and not a breakdown of professional flight discipline.

3. Hazard maps. Wires and other obstacles that pose a significant threat to terrain flight

should be accurately depicted on hazard maps. In areas such as Europe where the prominence of wires would unduly clutter the map, major wire hazards and wires that are located in unlikely areas should be plotted and aircrews made aware of other unplotted wire locations such as along roads, railroads, etc. When it is possible for all wires to be plotted without compromising the usefulness of the map, then by all means they should be.

4. Wire marking. Wires around all potential takeoff and landing sites on and off military reservations should be marked whenever possible. Certainly, all wires around frequently used landing sites should be marked. Units using tactical communications lines strung above the ground should be advised that these lines can be a hazard to Army aircraft and should be conspicuously marked. While pilots should know when to expect wires, environmental conditions can sometimes make them virtually impossible to see. Markers can greatly simplify this task.

5. Minimize contour flying. Virtually all wire strikes occur during terrain flight in the contour mode or on takeoff or landing. The most serious mishaps occur during contour flight. Low level is generally above the wire environment and NOE speeds are usually slow enough to allow crews to react and avoid wires. It follows then that minimizing time in the contour mode can reduce wire strikes. In addition to this, it is imperative that crews exercise maximum vigilance whenever landing in and taking off from an unfamiliar area. Likewise, they cannot be complacent about going into or out of places they know. Wires can be constructed in a matter of minutes or hours and when in place they are ready to attack.

6. Maximum crew coordination. When flying in a wire environment, maximum coordination among all crewmembers is needed in searching for wires. During terrain flight, the pilot's full attention should be to flying. Navigation, setting radio frequencies, and monitoring instruments should be a function of the other crewmembers. If the pilot at the controls must direct his attention away from flying, then he either needs to land or climb to a higher altitude above the obstacle environment. If not, experience has shown there is a good chance he will hit something (the ground, a tree, some wires, etc.).

7. Terrain flight airspeed should be tailored to the environmental conditions. This airspeed must be such that a pilot will be able to identify and react to an unforeseen obstacle in his flight path in time to avoid hitting it. A general rule is that the closer to the ground a flight is to be flown, the slower the airspeed should be. While speed greatly affects reaction distance, another factor in determining the appropriate airspeed is the environmental conditions affecting forward visibility, i.e., precipitation, fog, haze, glare from the sun, darkness, etc. Assuming good visibility, if two aircraft are approaching wires and one is at 80 knots while the other is at 40 knots, the pilot of the faster aircraft will need to spot the wires at a distance of more than 1,650 feet to react and avoid them. The pilot of the slower aircraft will have ample time to react if he sees them at 600 feet.

Some aviators may not be impressed with the wire threat, the statistical data, or the seven-point prevention program. We all too often say it always happens to the other guy, never to me. Fortunately, there are a lot of "other guys" still out there walking around, but there are also some who are not. If you have any doubts about wire strikes, search out someone who has had one. You will find such a person at almost every installation and most of them realize they were lucky and came within a few inches of being not so lucky. If, as an individual aviator, you get nothing more out of this article than the following, we have accomplished something: *Slow down as you go down and use all crewmembers to help look for the wires.*

Mr. Jerry J. Morris, Aerospace Engineer
Directorate for Systems
Engineering and Development
DARCOM
St. Louis, MO
and
LTC Donald E. S. Merritt
Readiness Project Officer
Scout/Observation
Helicopters
TSARCOM
St. Louis, MO

WIRE STRIKE: THE OH-58 EXPERIENCE

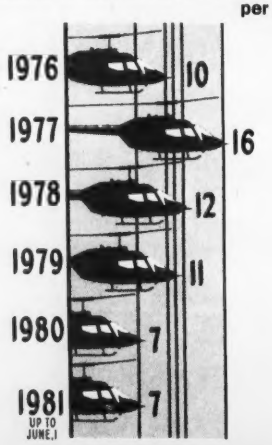
THE OPERATIONAL need stated in the mission sheet given the pilot is a standard, seemingly straightforward one of troop support that requires at some point the use of low level flying techniques.

Witness:

- The terrain flight navigation mission being flown for the benefit of the copilot, a relatively new, low-time pilot.
- The tactical training mission involving opposing maneuver forces about to overrun the platoon's position.
- The aerial surveillance mission that was delayed 2 hours due to poor visibility in the area and finally flown in light haze and fog.

These were (and are) normal everyday missions. *They ended in aircraft crashes. The crashes were caused by wire strike.* Army aircraft have been involved in a wire strike mishap on an average of once every 2 weeks for the past 10 years.

FIGURE 1: Total OH-58 wire strikes per year



The primary mission of the OH-58 Kiowa helicopter in the scout role is to provide aerial observation, target acquisition, reconnaissance, and command and communication. As such, the OH-58 is required to perform terrain flight (nap-of-earth, low level, contour), enclosed area takeoff and landing and confined area maneuvers. With this emphasized operation close to the ground and during varying degrees of visibility, the hazard created by above the ground strung electrical, communication and carrier wires is very real and constantly present.

Witness the helicopter pilot escorting troops on a reconnaissance and ambush mission who—while forward hovering in a field tactical site—saw wires, applied cyclic, had a tail rotor strike, lost his 90-degree gearbox and crashed.

Despite concentrated training/education on avoiding wire strike, mapping of wires on hazard maps, physically marking wires, and establishing standing operating procedures (SOP) for terrain flight, wire strike remains a serious problem.

During the period 1976 to 1980, the OH-58 fleet experienced an average of 11 wire strikes per year (figure 1, chart of OH-58 wire strikes). There were a total of 18 injuries and 7 fatalities (figure 2, injuries and fatalities). The average yearly cost was $360,406. The total cost at the end of 1980 was $1,802,032 (figure 3, chart of costs.)

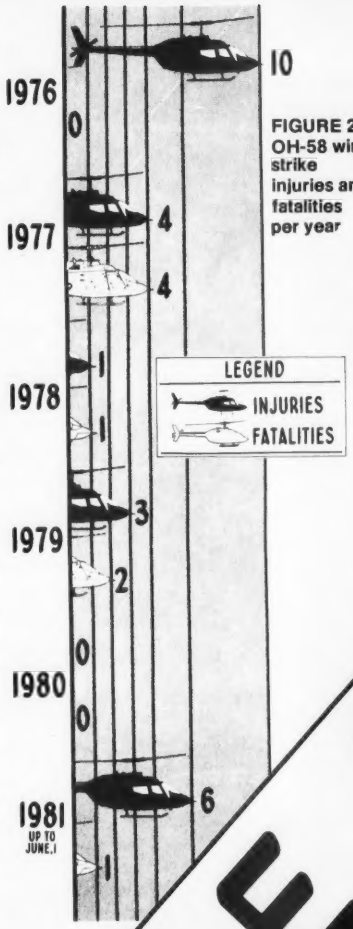


FIGURE 2: OH-58 wire strike injuries and fatalities per year

OH-58 STRIKES STRIKES BACK

As above the ground wires have not been eliminated, nor will they be in the near future, the Army Aviation community members concerned with doctrine, safety, logistics and technical matters agreed that the hazard presented by above the ground wires must be effectively reduced by configuring the helicopter to be more tolerant of wire strikes. The goal was to develop a simple, lightweight, easy to install and maintain, low cost and highly effective wire strike protection system (WSPS).

FIGURE 3: OH-58 wire strike costs per year

The WSPS developed by Bristol Aerospace for the Canadian CH-136 helicopter was proposed for application to the OH-58 (figure 4, Total Bristol WSPS).

The WSPS had undergone extensive testing to establish feasibility and effectiveness of the design. A wrecked Kiowa fuselage, with a windshield deflector and upper cutter installed, was rigidly secured on a truck and instrumented to record wire deflection-cutting forces. The truck was driven through various combinations of wires, at speeds from 15 to 60 miles per hour. Yaw angles were varied from 0 to 45 degrees, and multiple strike locations were used.

While the truck test confirmed the efficiency and capability of the concept, it did not answer questions regarding aircraft pitch and yaw changes, deceleration loads during impact and cutting sequence, and their effect on aircraft control and blade flapping. Nor did it test the lower cutter.

To answer these questions, a swing test was conducted by the Advanced Technology Lab (ATL), Ft. Eustis, VA, at the National Aeronautics and Space Administration facility, Langley AFB, VA. A fuselage with the complete wire strike protection system installed was suspended by the rotor mast and allowed to freely swing through the objective wires. The test included single and multiple wire cuts by the upper and lower installations and simultaneous wire cuts by the upper and lower cutter (figure 5, test apparatus). (See "Wire Strike Protection For Helicopters," September 1980 ***Aviation Digest.***)

Results of swing test established that impact-deflection-cutting se-

FIGURE 4: Bristol Aerospace wire strike protection system

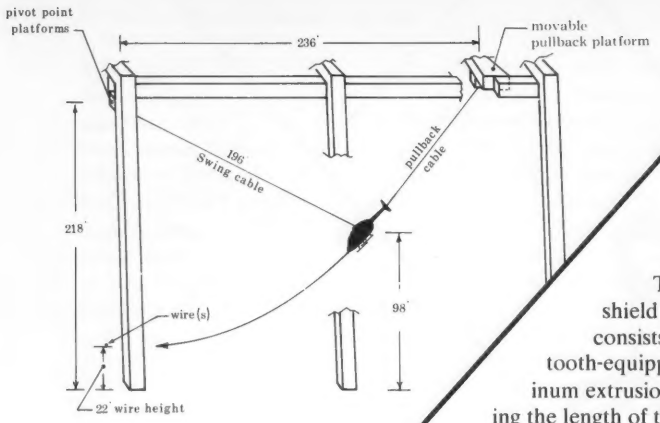


FIGURE 5: Swing test apparatus

quence will not have a significant effect on the helicopter or operator with respect to performance, control or blade flapping.

Other testing accomplished was flying qualities, EMC/EMI (electromagnetic compatibility/electromagnetic interference) and a product improvement evaluation.

All tests were successfully completed and the WSPS was accepted for application to the OH-58 aircraft. The system consists of an upper cutter/deflector, a windshield protector/deflector/cutter and a lower cutter deflector (figure 6). The upper assembly consists of a sawtooth edge deflector and wedge type cutter blades. The deflector guides the wire into the cutter blades while simultaneously abrading, thus weakening the wire. The cutter blades are positioned to provide the necessary mechanical advantage to cut the wire while minimizing the load input to the airframe.

The windshield assembly consists of a saw tooth-equipped aluminum extrusion extending the length of the center post. It deflects the wire into the upper cutter while simultaneously abrading the wire. It also provides additional structural support for the upper cutter mounting. The lower assembly is essentially identical to the upper cutter/deflector and provides the same deflection, abrasion and cutting functions.

The WSPS is simple to install and maintain requiring only standard, readily available tools and skill levels. The installation time is 45 workhours.

During introduction of the WSPS into the U.S. Army system, the Canadians (who had already fielded the system) experienced ground contact with the deflector of the lower assembly. Damage ranged from minor scraping to peeling away the mounting panel (figure 7, photos of ground contact).

The problem was considered to be of such significance to warrant evaluation of a design change. Two areas proposed for investigation were incorporation of a breakaway tip on the lower cutter and/or shortening the length of the cutter.

Bristol Aerospace initiated lab tests to optimize a breakaway tip design and validate that the design would withstand cable impact but shear on contact with ground or obstacle.

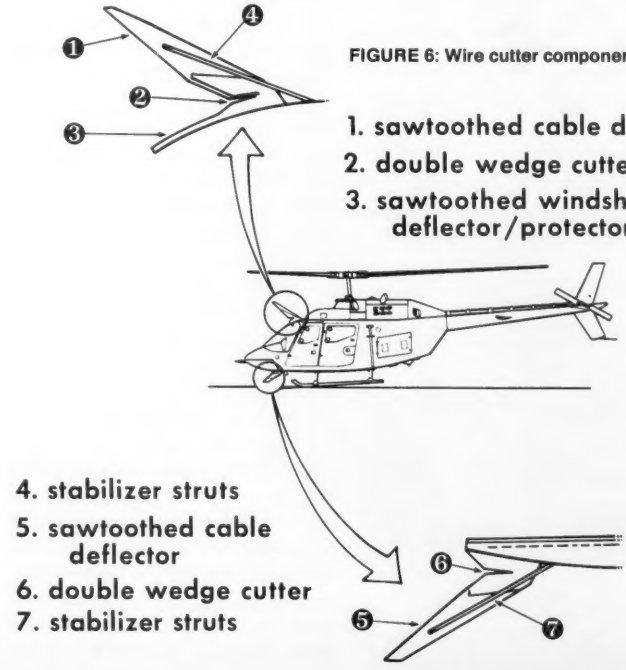


FIGURE 6: Wire cutter components

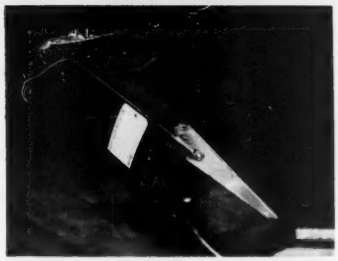


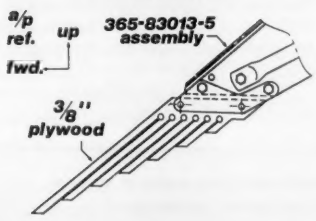
FIGURE 7: Lower deflector ground contact

A flight test program was initiated at the U.S. Army Aviation Engineering Flight Activity using a special design lower cutter tip with graduated plywood fingers to indicate degree of contact (figure 8, wooden test apparatus). Flights covered tactical type operations involving: Forward flight, rearward flight, autorotation, slide-on landings, low altitude hover takeoffs and ground takeoffs.

Test results indicated that critical modes of operation are ground and hover takeoffs within 1 foot of the ground in combination with pitch attitudes greater than minus 10 degrees (nose low) (figure 9, chart of test results). The factors affecting nose attitude are: Pilot input, center of gravity location, gross weight, environmental condition (tailwind) and transitional lift.

Based on test results, the final design of the lower cutter will have a breakaway tip, with splice just below strut attaching point, two slide plates, two shear rivets, and the tip will be shortened by 2 inches in vertical height (figure 10).

FIGURE 8: Lower deflector wooden test apparatus



Also, a note will be added to the operator's manual cautioning about nose low attitudes greater than minus 10 degrees in proximity to ground (figure 11, caution note).

In review, the best approach to wire strike is still avoidance. Continuing education and stressing of the steps for wire strike prevention are paramount:

- Establishing SOPs for terrain flight.
- Ensure adherence to SOP.
- Preflight briefing on wire hazards.
- Mark wires.
- Avoid contour flight not mission required.
- Crew coordination.
- Go slow when you go low.

If avoidance fails the wire strike protection system will be there to provide the "ace-in-the-hole" capability of severing the wires and preventing aircraft damage or personnel injury. It is not, however, a fail-safe system. Frontal coverage (area from skid bottom to mast top) is 88 percent in level flight. Conceivably it is possible, but highly unlikely, for a wire to enter from the frontal area somewhere between the upper tip of the cutter and the rotor blade and the tip of the lower cutter and the bottom of the skid. Wires that are not under tension, i.e., free-strung commo wire, present unique challenges. These areas and others are under close scrutiny by the ATL.

The WSPS is a well designed and tested piece of equipment, totally meeting the original goals of a passive, simple, light-weight, maintainable system. With proper education and emphasis on pilot awareness of possible ground contact with the lower cutter, the system will provide trouble-free and effective wire strike protection.

critical modes of operation
ground and hover takeoffs within one foot of ground and over 10° nose low pitch attitude

factors affecting nose attitude
pilot input
CG location
gross weight
environmental conditions (tail wind)
environmental conditions (tail wind)
transitional lift settling

FIGURE 9: U.S. Army Aviation Engineering Flight Activity test results

FIGURE 10: Lower cutter with breakaway tip

FIGURE 11: Operator's Manual caution note

CAUTION

DURING TAKEOFF WITH THE HELICOPTER SKIDS CLOSE TO GROUND, NOSE LOW ATTITUDES OF 10° OR MORE CAN RESULT IN GROUND CONTACT OF THE WSPS LOWER CUTTER TIP. FORWARD C.G., HIGH CROSS WEIGHT, HIGH DENSITY ALTITUDE, TRANSITIONAL LIFT SETTLING, AND A TAIL WIND INCREASES THE PROBABILITY OF GROUND CONTACT.

VIEWS FROM READERS

Editor:

Request this organization be put on permanent official distribution for the ***U.S. Army Aviation Digest*** (three copies).

Our squadron flies CH-3 Jolly Green Giant helicopters for special operations missions. We often work with U.S. Army Special Forces. We find the ***Aviation Digest*** a valuable source of information about Army Aviation operations procedures, training and related areas of common interest.

Major Paul R. Davis
302d Special Operations Squadron (AFRES)
Luke Air Force Base, AZ 85309

• Air Force units should use local funds and submit a request for an annual subscription $22.00 ($27.50 for overseas units) to Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402.

Editor:

Please send me parts 1 through 4 of the article "From Balloon to Black Hawk, The Army Forward Aeromedical Evacuation Story," by Lieutenant Colonel David M. Lam, M.D. One of the articles appeared in the September 1981 issue.

LTC Thomas C. Munley
Chief, Command & Staff Branch
Military Science Division
Academy of Health Sciences
Ft. Sam Houston, TX 78234

Editor:

Your July 1981 article, "You Can Say No!" was both timely and relevant for aviation commanders and aviators in the active and reserve forces. As CW3 Wingate points out, it is the duty of the professional aviator to exercise his best judgment when missions are to be flown under questionable circumstances.

The following acronym was developed to help provide guidelines to aviators and to those initiating mission requests. Perhaps your readers can use it:

ABILITY to serve is hampered when requesting units fail to recognize that:
Aircraft have limitations due to maintenance and weather.
Bonafide missions which support training are the only valid missions.
Intelligent use of aviation includes concern for the time and safety of aircrews.
Limited use of time maintenance equipment reduces down time.
Immoderate deployment of
Tactical resources results in declines in their value for
You.

Please send me 10 copies of the article "You Can Say No."

Major Howard J. Hurst
HQ 42d Avn Bn NYARNG
63 Babylon Tpke
Freeport, NY 11520

Thank you for sharing your guidelines with the *Aviation Digest* readers. Also, the copies you requested are in the mail.

Editor:

In reviewing the article "Beating the Hind-D" which appeared in the November 1980 ***Aviation Digest***, the author read with great interest the concept that close support aircraft such as the Air Force A-10 may be an ideal aircraft for antihelicopter operations. If recent experience gained by members of Trp D, 1/238 Cav, Michigan National Guard is any indication, this may not be the case.

During a tactical exercise which occurred during September 1980 at Camp Grayling, MI, M Series gunships utilizing Russian Hind-D flight techniques were deployed against Air Force H-3 helicopters escorted by A-10 Sandy aircraft during search and rescue operations. A typical operation would see two flights of two Hind aircraft deployed against three Air Force H-3 helicopters with five A-10 escorts; a common UHF radio frequency was used for command and control and to call "kills." The Hind crews knew the general location of the downed pilot, and A-10 crews had been briefed that Russian Hind-D aircraft were conducting operations in the area.

During a particularly successful operation in which Hind crews claimed two H-3 helicopters and two A-10 aircraft in one 2-minute engagement, one Hind crew closed within 100 meters of an H-3 before calling his kill, a second Hind started his attack run at 2,000 meters and closed to 800 meters. Both attack helicopters were able to press home their attacks while avoiding detection by the A-10 escort. While the tactical exercise was of limited scope and sophistication, the Hind crews had gained a high degree of confidence in their ability to successfully operate against close support aircraft of the A-10 type.

While many of the following recommendations and conclusions may have

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been stated before and many are common sense, the author believes when taken as a whole, they may offer substantial advantages when operating against fixed wing aircraft.

• Target Acquisition: With present close support aircraft lacking a look down—shoot down capability, target acquisition becomes a visual process. With its slower speeds and ability to hover in well concealed overwatch positions, the attack helicopter enjoys a decided advantage in target acquisition over close support aircraft with their much higher airspeeds and more limited ability to use terrain for masking. This advantage increases with the altitude of the close support aircraft. (Hind crews felt that task saturation of an A-10 pilot flying at 150 to 250 K low level, pulling high "G" turns made target acquisition of low flying helicopters using proper flight techniques a difficult proposition at best.)

• Target engagement: When attacking close support aircraft, attack helicopters should attack after the aircraft has passed over head from the 6 o'clock low position or after the aircraft has completed its target run and is breaking away from your aircraft. Hind crews felt that an attack helicopter equipped with an air-to-air missile with a range of 5 to 6 km would enjoy a large measure of success when attacking from the 6 o'clock low position. Closely related to target engagement techniques is the selection of engagement positions. Attack helicopter crews must become aware of both vertical ahd horizontal masking. Present terrain flight techniques offer maximum protection from today's horizontal threats such as enemy air defense systems, other attack helicopters and ground observers. Vertical masking would be any measure taken to decrease detection from above. At present this is probably limited to proper terrain masking and proper utilization of the aircraft's camouflage. All Hind crews were of the opinion that maximum vulnerability to detection from both horizontal and vertical threats occurred during weapons release due to weapons signature.

• Stationary vs. moving: Hind crews felt that a stationary aircraft in a well selected ambush position enjoyed a decided advantage over a moving helicopter or fixed wing aircraft in everything from target acquisition to weapons employment. This fact became most apparent while egressing from the target area. After weapons release Hind crews had three basic options; a. Remain stationary to maintain the advantages of a stationary aircraft. b. Make a short dash to a secondary position to avoid detection due to weapons signature. c. Use a preplanned route to leave target area. In any case, it was felt the lead attack helicopter should be covered by its wingman from a well concealed overwatch position until both attack helicopters are well clear of the engagement area.

In closing, the author believes that with proper weapons and tactics, the attack helicopter can successfully defeat both fixed wing close support aircraft and helicopters. Hopefully further testing in this area will prove that the best antihelicopter weapon is the attack helicopter.

Captain Ken Donovan
Section Commander
D Troop, 1/238th Cavalry
Michigan National Guard

Editor:

Our staff is tasked with planning and conducting the aviation portions of CPXs and FTXs for divisions and higher level organizations. In the August 1981 issue, the article by LTG Richardson, "Airmobility In The 1980s" (on page 26), mentions a decision to integrate aviation into the combat arms basic and advanced courses and cites 19 aviation shared tasks and 10 to 14 branch specific tasks that will be integrated into programs of instruction. We are keenly interested in learning exactly what the shared and specific branch aviation tasks are and how they are being presented in the schools. We will then be sure to include tasks into exercise play.

Major Edgar A. Rickard
Assistant Staff Aviation Officer
87th USA Maneuver Area Command
Birmingham, AL 35244

Editor:

I would like to share this poem with fellow aviators. The copyright was applied for in June of this year, and I am the author. No return of this piece of work is required.

CPT Dennis M. Skaggs
25th Aviation Company
APO New York 09352

The Aviator

Before the crackling dawn begins,
I start my early vigil of flight.
Planning, checking every detail, I raise
my aircraft into the morning light.
I hover forward, listening, observing,
my final checks complete.
I smoothly change the attitude, add power,
moving at my Master's feet.
The call of duty, of life, of nature
are in perfect unison.
So slightly forward across the earth,
my bird and I move as one.
Sleeping creatures awaken, scattering
before our frightening sound.
Our speed increases, we pass quickly
just above the ground.

The environment changes, caution prevails,
safety is far behind!
We glide slowly, through unknown peril,
duty, family, God upon my mind.
The enemy waits! I know not if it
is man, machine, or nature!
We travel over streams, beneath the trees,
alerted to the danger.

As our mission ends, daylight fades,
once more free to roam,
To travel swiftly cross God's carpet,
to the safety of our home.
We slow our speed, I lower the skids,
to signify the end.
Dusk prevails, the rotor stops, I say
good-bye to my old friend.

To my companions, of flights in which
we've shared,
I tip my wings, and offer a silent,
thankful prayer.
We who move in harmony, through
the forest of our Creator,
We are a part of life, a part of nature—
The Aviator.

Editor:

I have not served in Korea but found the articles in the September issue interesting—and disturbing. The Army aviation personnel serving there are in a critical positon if hostilities occur. They should be concentrating on training, doctrine and tactics to assure they will be able to perform their mission with a reasonable chance of success in a hostile environment and provide sustained support. Instead, it appears as if the commanders are engaged in "one-upsmanship" at the expense of readiness.

One of the first things a *student pilot* should learn is the importance of staggering scheduled aircraft maintenance. If you have 100 percent flyable in a company size unit, you aren't watching your maintenance flow. If you did have 100 percent flyable because of poor scheduling, you wouldn't compound it by having a dog and pony show fly by. Check the readiness for the 2 weeks following this event.

It is astounding that an aviation unit is based 7 kilometers from the DMZ. Didn't we learn anything in Vietnam? During the Tet Offensive of 1968, I had the unfortunate duty of having to recover AH-1s from Dong Ha where they had been heavily damaged by DMZ artillery. Someone had wanted them "up front, where the action is."

If one commander is running his troops 10 miles a week, then another must do twice as much and run his people 20 miles. While they are doing all this running, when do they train? You certainly can't train effectively after being fatigued from all that running. There was no mention of instrument training in the articles. After checking a number of flight records of aviators who have returned from Korea and talking to recent returnees, I can understand why. Very little SFTS and hood training is being done. How many folks did we lose in Vietnam because they weren't proficient at instrument flight? Compare that with the losses among aviators who couldn't run 20 miles a week. Also, when they report "100 percent status," how many aircraft are instrument flyable?

One of the basic doctrines of Army Aviation employment in a high threat environment is to operate in lightly defended areas. Why would a general advocate "multiroute penetrations of the most heavily defended areas of the battlefield. . ."? Are the aircrews receiving kamikaze indoctrination? Or doesn't he have any advisors who are knowledgeable about aviation capabilities and limitations?

One of the top factors influencing AWOs to leave the service is lack of competence in aviation matters by the chain of command, according to the ARI study. Even more important is the needless loss of crews and aircraft—in peacetime as well as wartime. Enough said.

CW4 Carl L. Hess
4/507th Med Co (Air Amb)
Ft. Sill, OK 73503

Editor:

Recently I read the following in ***Army Times,*** "New Gray Eagle. With the retirement of Marine Corps LtGen Andrew W. O'Donnell, Vice Adm. Robert F. Schoultz, Commander, Naval Air Force, Pacific Fleet, has become the Navy's newest Gray Eagle—the active duty aviator with the earliest date of designaton."

I wonder if the Army had a similar designated aviator? If not, I think it would be a good idea.

CW3 Don Benedict
HQ, 7th Signal Command
Ft. Ritchie, MD 21719

Editor:

One would think that in the current era of Army Aviation with the trend toward equipment modernization and increased training goals through the ATM program, the Army would attempt to maintain its proud tradition of recognition through hard work. However, based upon the revised change in AR 600-105, the erosion process of traditional standards has finally devalued the coveted Master Aviator's Wings. By effectively removing the 3,000-hour requirement, the Army has assigned little distinction to the Master Aviator Wings.

As a new aviator, I had stood in awe of the Master Aviator and dreamed of achieving the clustered top wing some day. When I started my aviation career, the requirements were to be dual rated (fixed and rotary wing), have a special instrument ticket (50 hours AI), 3,000 hours of flight time and 15 years as a rated aviator on flight status. It was a badge of distinction and honor. When I got my Master Wings a few years ago, I considered it a high point in my aviation career and it increased my desire to set a standard other aviators would want to emulate.

But the sad part is that the aviators awarded the Master Wings now will not value them as much as past aviators. There is no more distinguishing hard work involved, only a badge that has been degraded to a pin representing years of service.

If I had my way, I would bring back the 15 years of rated service, 3,000 hours of flight time, 50 hours of actual instruments and add an IP course or instrument examiner course or a maintenance test pilot course. Then the Army would again have their Master Aviator back with the expertise, experience and image needed to keep Army Aviation "Above the Best."

If other Master Aviators feel the way I do, please express your views by sending a DA Form 2028 to the U.S. Army Military Personnel Center, HQDA (DAPC-OPA-V), Alexandria, VA 22332.

CW3 Dennis E. Dura
Ohio Army National Guard
Worthington, OH 43085

The date of the Victory at Yorktown was 19 October 1781, not 14 October 1781 as reported on the back cover of the September issue of the *Aviation Digest*. The *Digest* regrets any inconvenience the typographical error may have caused. It is also particularly discouraging to the editor who claims to be a history buff.

LTC John G. Heslin
photographs by SP4 Mark G. Crummett

Consider the Balloon

WITH THE INTRODUCTION and proliferation of effective antiair weapon systems on the modern battlefield, we have been forced to habitually operate in the nap-of-the-earth (NOE) environment. The challenge of low level navigation is well documented and the nemesis of many rotary wing aviators. Many of us have carefully planned our flight to ensure successful mission accomplishment defined in terms of en route survival and termination at the appointed place, at the appointed time. However, execution has often caused many an anxious moment

The white balloon (inset) is clearly visible when the background is green trees; but against the cloudy sky, the red balloon (top left) is more conspicuous

Materials used to inflate and deploy balloons:

(1) tent peg
(2) monofilament fishing line
(3) chemical lightstick
(4) balloon
(5) Air Force helium cylinder

as we weave in and out of the terrain environment, constantly checking our position against our planned route. As we approach our landing zones (LZ), a certain tightness increases until we get "contact" with our intended point of landing. This sensation is usually more pronounced during periods of reduced visibility, especially at night. Relief is almost instantaneous when some set of eyes within the aircraft makes "contact" with the LZ.

To ensure contact is made, we have several visual references which can aid us; examples are colored smoke, panels and sometimes flares or strobe lights. The problem with the visual references we now use is that they are far less effective for aircraft operating at treetop level. Panels cannot usually be seen until the aircraft is in the immediate proximity of the LZ. Smoke can be very imprecise as it drifts through the trees or is blown by the wind. In addition, smoke may become very visible to the enemy as it climbs into the air. Neither of these visual references is effective at night. Flares can best be seen at night; however, if fired they usually do not mark their origin clearly and may be observed for some distance by the enemy as they arch high above the LZ. Ground flares or strobe lights are often masked by the vegetation and not observed by the approaching aircraft.

Radio beacons are very effective; however, the electronic emissions are easily detected and their source pinpointed by enemy forces. Also, nondirectional radio beacons are not as readily available.

An alternative visual reference system may be developed using helium-filled balloons on a tether. Some exploratory testing and training have been conducted by C Troop, 3d Squadron, 4th Cavalry, 25th Infantry Division, Western Command, HI. Balloons and helium were obtained from the 25th Infantry Division, Division Artillery Headquarters, Metro/Radar Section. The meteorological balloons were red, white and black; however, only red and white were used for the test. Fully inflated, they are about 24 inches in diameter. Locally purchased 6-pound test monofilament fishing line and plastic tent pegs were used for the tether. The Metro Section provided some heavy twine; however, in the interest of safety, the lighter line was used and it proved satisfactory. The balloons secured by light monofilament line present a minimal safety hazard to the aircraft.

Helium for inflation was provided by a large cylinder weighing about 60 pounds. Although this is adequate for preliminary tests, a small container such as a CO_2 type cartridge would be necessary for tactical application. The Air Force Weather Detachment at Wheeler Air Force Base, HI, provided a sample of a lightweight portable container they used. The Coast Guard also has similar helium containers.

The day portion of the test was conducted using a single UH-1H Huey and two Soldiers (19Ds) from the recon platoon of C Troop. The team was inserted in a small LZ known as "LZ Depression" located at the northern end of the Kahuku Training Area. During the test, winds were 15 to 20 knots and there were intermittent rain showers through the area. The team members, Sergeant Russell Grant and Specialist Four Donald Jensen, did not have any difficulty inflating and deploying the balloons in the LZ. However, one balloon pulled free from the ground and was lost; another was destroyed when the wind pushed it into the trees. After making adjustments for these problems, the Soldiers were able to position and secure the remaining balloons without further difficulty.

Several NOE approaches were made with white and red balloons deployed to mark the LZ. The white balloon was easily observed and clearly visible when the background was green trees. However, when the balloons were skylined, the red one was more conspicuous. The pilots, Chief Warrant Officer, CW2, David Currie and Captain Bryan Fluke, stated that the balloons greatly facilitated locating the LZ. From the NOE altitude, the LZ was completely masked by the surrounding trees. When observed from a higher altitude, the white balloon could be seen for several kilometers. The balloons could be quickly recovered or easily cut free in the event of detection.

Initial night testing was conducted by the C Troop commander, Major Jim Wiggin during marginal weather conditions of intermittent rain showers. A white balloon with a 30-minute, high-intensity, cyalume light-stick was used. These lightsticks are locally purchased for about $2.50 each and are included as part of the survival equipment for aviators in Hawaii. The Division Artillery Metro Section also has a small white light, about 59¢ each, which can be used with the weather balloons. The lightstick was activated and inserted in the balloon. The balloon had the appearance of a

Soldiers of the recon platoon releasing the line and anchoring at selected height; releasing additional red and white captive balloons at various heights

glowing globe which could be observed drifting above the trees by the aircraft crew. The light from the balloon was not so intense as a light suspended beneath it. In fact, if more light were required to be observed from an extended distance, several lightsticks could be hung in series; however, the balloon would have to be inflated more in order to lift the additional weight. An interesting point here is that the greenish light from the lightstick was not easily detected by the use of night vision goggles. A white light would be more easily detected. It was also found that the lightstick does not significantly degrade night vision. These lightsticks may prove useful for other tactical lighting requirements such as constructing a "Y" or marking parking spots.

Initial indications are that the helium balloons provide an effective day/night visual reference system to support helicopter operations in the NOE environment. The Cavalry Squadron, 25th Infantry Division, intends to continue testing with an air toward possibly integrating the system into normal training.

One word of caution is offered here. Should one of the balloons with a lightstick in it break free, you are likely to have a large number of UFO sightings reported in that area.

Alternative applications for the balloon for both training and combat seem limited only by imagination and initiative. It has been suggested that scout aircraft could use them to mark flight routes, PRs, etc., for a follow-on air assault operating NOE. In a training environment where aerial gunnery is often limited to the same old expensively emplaced targets, one might consider using an array of balloons dropped in the impact area. This would provide a rapidly changing target display which would be challenging to engage and inexpensive to employ.

The visual references used in training will be the ones used in combat. Selection of the most appropriate reference commensurate with terrain, weather, enemy and the mission will be made based on availability. What is suggested here is that the choice be expanded by a different application of items already available in the supply system in order to enhance combat effectiveness.

ABOUT THE AUTHOR

Lieutenant Colonel John G. Heslin is the Aviation Officer for Headquarters, United States Army Western Command, Ft. Shafter, HI. He received a bachelor's degree from Providence College and a master's degree from the University of Rhode Island, and is a graduate of the Command and Staff Course, Naval War College. He has served in various aviation command and staff positions in the Continental United States and Vietnam.

PEARL'S

Personal Equipment And Rescue/survival Lowdown

Elaine Chiboucas photo by Tom Greene

Emergency Locator Transmitter

There have long been arguments both for and against the use of emergency locator transmitters (ELTs) in Army aircraft. In fact, our first article on this subject was published in PEARL in October 1979. Sure, we have signal devices such as the flares, signal mirror and survival radio. But, how effective are these items if you crash, are unconscious or have broken bones, and are unable to use the devices?

We feel that you should again review the Department of the Army (DA) policy pertaining to ELTs as stated in Headquarters (HQ) DA message, DAMA-RQD, 241910Z July 1981: "HQDA continues to support ELTs for aircraft in remote or isolated areas and other areas where a bona fide need exists." The article in the August 1981 *Aviation Digest* entitled "Emergency Locator Transmitters... Why Wait?" again identified the ELT as a viable means of locating and rescuing downed aircrew personnel and their passengers. Further, based upon the Army's mishap experience, where delay in effecting rescue has resulted in loss of life and excessive time and money expended for search and rescue, the interest in ELTs is growing rapidly in the aviation community. Therefore, we suggest that each aviation unit evaluate its respective need for ELTs and forward its request for use of these items, with justification, through the appropriate chain of command and this office to CDR, TSARCOM, ATTN: DRCBO-ALSE. This information will be used to assess the extent of interest and need for ELTs within the aviation community.

SPH-4 Problems

Three recent problems have surfaced regarding the SPH-4 flight helmet, national stock numbers (NSNs) 8415-00-144-4981 and -4985. Two pertain to the new chinstrap and one concerns the adhesives used in making repairs.

The first problem is excessive fraying of the new chinstrap (NSN 8415-01-057-3502), which is caused by the wearer not properly maintaining the protective flap up under the flight jacket collar when not in use. To avoid any further problems with this type of fraying, on future procurements of flight jackets the velcro pile and hook locations will be reversed to eliminate the possibility of contact with the helmet chinstrap. Point of contact (POC) for further information is Mr. Conger, TSARCOM Directorate for Maintenance, AUTOVON 693-3171.

The second chinstrap problem involves the webbing on the buckle end of the item. When this webbing is turned toward the face, the fused end cuts into the wearer's skin. It is suggested that the webbing on the buckle end be turned outside away from the face, rather than inside toward the face. The initial procurement of the chinstrap had the fused webbing on the inside, but this error has been corrected on later procurements. For problem chinstraps already on hand, local aviation life support equipment (ALSE) personnel should be able to restitch the webbing correctly.

The final helmet problem concerns damage to SPH-4 helmets resulting from the improper use of adhesives during repair, thus rendering the items unserviceable.

Do not use any adhesive for any application other than that for which it is intended or substitute one adhesive for another. See Technical Manual (TM) 10-8415-206-13 for the proper adhesive and location for use. POC is Mr. Kelly, Troop Support and Aviation Materiel Readiness Command (TSARCOM) Field Services Activity, AUTOVON 693-2196.

Night Vision Goggles

Although we don't actually handle actions on the AN/PVS-5 night vision goggles, we think it advisable to report problems with this item when we become aware of them. One such problem is that the face mask on the goggles breaks at the nose piece and along a line between the switch and the clamp knob. This cracking is caused primarily by flexing due to the activation of the ON-OFF-IR switch, rough handling and heavy usage by the operator, and improper packing in the carrying case. Rough handling can cause premature failure at high stress points such as around the switch and eyelets. Improper carrying case packing will also stress the mask and cause failure. The new style face mask with thicker material does *not* solve the breakage problem. To help alleviate this problem, after use prepare the goggles for packing into the carrying case as follows: Loosen the level clamp knobs so that the monoculars are free floating within the face mask assembly. Turn the focus knobs so that the objective lenses contract into the goggles as far as possible. This procedure will ensure less stress on the mask when the carrying case latch is secured and will preclude premature face mask cracks.

Questions and Answers

We recently ordered and received replacement first aid kits, NSN 6545-00-823-8165, for our survival kits. All the first aid kits were missing the sodium bicarbonate. The Army Master Data File (AMDF) advises that this item has been deleted without replacement. Is this really the case; if so, why? (CW2 Art Doyle, 498th Med Co (AA), Ft. Stewart, GA).

The subject sodium bicarbonate, NSN 6505-00-663-2636, has been eliminated from first aid kits due to potential hazards associated with its use. There is no suitable replacement for this item. In addition, TSARCOM issued a Safety of Personnel and Equipment Message, DRSTS-MAPL, 111150Z September 1980, Subject: Disposition Instructions for Medical Material, advising all aviation units to remove and destroy all subject material. POC at this office is Mr. Ed Daughety, AUTOVON 693-3307.

In your July 1981 "Questions and Answers" section of PEARL, you talked about the sizes offered for the CWU-27/P one piece flight suit. I need a CWU-27/P size 38 X-Short, but can't find it listed in the AMDF. Is this size available; if not, what can I do? (CW3 Richard Cruz, 507th Med Co, Ft. Sam Houston, TX).

According to Natick Laboratories (NLABS), your size is not currently available. You will have to go the special measurement route as prescribed in the July 1981 PEARL. However, NLABS has also informed us that size 38 X-Short will be available for issue in third quarter fiscal year 1982. As per a recent agreement with the Air Force, the CWU-27/P will be furnished in the X-Short length in sizes 32, 34, 36, 38 and 40. POC for further information at NLABS is Mr. Dan Daluz, Clothing Branch, AUTOVON 256-4032.

We have had great difficulty trying to obtain the MQ-1 oxygen mask tester, which we need for testing our MBU-5/P oxygen masks. Every time we try to requisition this item, we are told that the tester is not authorized and not in the AMDF; consequently, we can't get it. Can you please tell us how we can order one of these testers? (SSG Joe Darvill, AASF #1, GAARNG, Winder, GA).

Table 2-2 of TM 55-1660-243-12/TO 15X5-4-4-12 (Maintenance Instructions for the Oxygen Mask, Type MBU-5/P) lists the MQ-1 oxygen mask tester as a *required* item of test equipment for the MBU-5/P mask. That is your basis of authorization. Since the item is not in the AMDF, it must be ordered "off-line" from FPZ under NSN 6695-00-564-9500. You should further consult your state U.S. Property and Fiscal Officer concerning the funding since a transfer of money to the Air Force is involved.

Rumor has it that the food packet, NSN 8970-00-082-5665, a component of our survival kits, is no longer available. Can this rumor really be true? (SGT Dave Morgan, 120th ARCOM ASF, West Columbia, SC).

Since we had heard nothing to this effect, we contacted the item manager of the food packet at the Defense Personnel Support Center in Philadelphia. He stated information had been published that this item was no longer available but that such information was totally erroneous and was published by mistake. He verified that the food packets are still being processed and will continue to be stocked. They may be ordered from S9S at a cost of $2.29 each. POC at DPSC is Mr. Anthony DeSachez, Directorate for Subsistance, AUTOVON 444-2938.

If you have a question about personal equipment or rescue/survival gear, write PEARL, DARCOM, ATTN: DRCPO-ALSE, 4300 Goodfellow Blvd., St. Louis, MO 63120 or call AUTOVON 693-3307 or Commercial 314-263-3307

AVIATION WARRANT OFFICER RETENTION

A Matter of Action

Colonel George A. Morgan, Chief

CW4 Kenneth M. Johnson

Warrant Officer Division
U.S. Army Military Personnel Center
Alexandria, VA

OVER THE PAST several months, the Army Research Institute (ARI) has provided an in-depth look at its investigation of aviation warrant officer retention. From inception through conclusion, the study has had a single purpose—a purpose which will be described in this fourth and final article in this series on aviation warrant officer retention.

A Starting Point. The importance of the ARI study cannot be overestimated. Many programs designed to alleviate problems never get off the ground because "a problem" cannot be specified or substantiated. This is the real world in which decisions are made. The aviation warrant officer retention study provided the needed substantiation and specifics. At last, "what everybody knew" became a specific outline that expressed the concerns, irritants and dissatisfiers that affected warrant officer retention. It provided a starting point for action.

This is the last of four articles that the *Aviation Digest* has carried about the Aviation Warrant Officer Retention Study. The previous articles were: "A Matter of Concern," August 1981; "The Factors Which Influence the Decision to Leave," September 1981; and "An Evaluation of Demographic Items," November 1981. Copies of these articles can be obtained by writing to Editor, *U.S. Army Aviation Digest*, P.O. Drawer P, Ft. Rucker, AL 36362.

MONTHLY WRITING AWARD

The Limits Of Action. Even with a well-defined series of problems, it became obvious that certain limits had to be drawn. From the outset, it was apparent that the concerns expressed by the aviation warrant officers were not solely aviation related, but rather they reflected many of the conditions and problems that related to the entire Warrant Officer Corps. It was decided that to address only the aviator problems would be self-defeating in the long term. Hence, the first limit was to seek solutions that would benefit all warrant officers. The second limit dealt with the question

of what could realistically be done. The retention study found many singular factors that influenced the decision to stay in or separate from the service. These factors were divided into two categories: (1) those that could be directly influenced through policy change or internal action, and (2) those that could only be effected through interagency action or through long-term programs. Through close coordination, the combined actions of Warrant Officer Division and Aviation Plans and Programs, U.S. Army Military Personnel Center (MILPERCEN) and the Office of the Deputy Chief of Staff for Personnel led to the series of development and implementation of initiatives.

The First Steps. The initial thrust of the programs developed was aimed at the top 10 factors influencing aviation warrant officers to leave the service. Since the stated purpose of the study was to determine why losses were occurring, the initial programs had to reflect the Army's concerns and provide some immediate results. The initial program, termed "The Warrant Officer Retention Initiatives," addressed the ARI findings as well as the input of the major commands and individuals in the field.

Flight Pay Equalization: Prior to the publication of the final ARI study results, flight pay disparity emerged as the single leading dissatisfier among aviation warrant officers. This quickly became an emotional issue, far exceeding the monetary consideration. Credibility of the retention effort dictated that one of the first initiatives taken should be directed at resolving this inequality. Following staffing throughout the Department of Defense, this key proposal is included in the Jepsen-Exxon Military Pay Bill which became law in October.

Leadership and Supervision: By far, the majority of concerns expressed dissatisfaction with leaders and supervisors. Since this area was not directly addressable at MILPERCEN, a program was developed that would minimize the concerns directed at the assignment managers. A close look at the top 10 factors indicated these could, in part, be attributed to "in-house" management practices. The general perception of lack of concern for the individual, a lack of opportunity for desirable installation assignment, and a lack of predictability of a future in the Army reflected outdated management practices and communications problems. The belief that career managers were working in a void, free of contact with the "real world," along with the feeling that assignments and career decisions were made without concern for the individual, generated a feeling of uncertainty about the future. Following field interviews, the Warrant Officer Division recognized this as a primary concern of warrant officers. The Aviation Assignments Branch was reorganized to control assignments by military occupational specialty (MOS) rather than by geographical area. This action oriented the assignment managers on people rather than on installations. Along with this, replacement assignment/career managers were chosen from experienced members of each MOS, adding credibility as well as understanding. The second major reorganization within Warrant Officer Division was the Professional Development Branch. Prior to this time, professional development equated to civilian and military schooling. Under the reorganized concept, Professional Development Branch is charged with future plans, continuing the progress to date and finding answers to some of the basic questions that remain unanswered concerning warrant officer management, retention, strength and training.

Aircraft Tracking: The inability of the aviation warrant officer to transition into other aircraft was a source of irritation and job dissatisfaction. Policy changes resulted in removing the AH-1 Cobra from consideration as an "advanced" aircraft and opening the more desirable transitions to all MOSs. While still very limited, the expanded opportunities for fixed wing aircraft and CH-47 Chinook helicopter transitions have been well received.

Inadequate Pay: At the time the ARI study was conducted, the military as a whole was struggling under the results of several years of capped pay. This was clearly an issue over which Department of the Army had little control. Soon after the study was completed, the Nunn-Warner Pay Bill was passed, providing some relief to all ranks. Since that time, the current pay bills have been placed before Congress and have been approved. The results of these actions have, in essence, resolved this issue in the near term and no actions, other than those described below, are contemplated.

Expanded Grade Structure: One of the major inputs from the

field commands reflected the desire for an expanded grade structure for chief warrant (CW) officers. Primarily from the aviation warrants, the "CW5/CW6" issue was surfaced as a response to desires for increased promotion opportunity, lack of opportunity to apply for a direct commission following Vietnam and as an adjunct to the pay issues. Careful study of this proposal revealed its extensive impact on promotions and assignments, and left questions that had no easy answers.

Three main problem areas immediately arose:

(1) How to justify the expanded grades (hence higher costs) in terms of gains for the Army and, in light of the fact that due to active federal service the grades would be closed to a majority of the warrant officers, as far as gains for the Warrant Officer Corps.

(2) How to develop the expanded grades since they must come from existing authorizations for total numbers in the active Army.

(3) How to prevent "grade stagnation" since time in grade for promotion would dramatically increase to preclude exceeding grade authorizations.

Since the inception of the Warrant Officer Corps, the grade structure has been used primarily as a pay step, not reflecting an increase in ability or competence in a given field. An alternative to this may be found in a proposal currently being looked at by MILPERCEN and the Army Staff to provide pay step increases for CW4s with more than 20 years of active federal service. This proposal is in its initial stages of staffing. It has been well received to date and will be actively pursued in the future.

Position Grading: Getting the right person in the right job has always been the key in job satisfaction. Several studies have been conducted on the grading of warrant officer positions with similar results each time—the disadvantages far outweigh the advantages. Adopting a graded position system would mean strict limits on grade authorizations, essentially stopping promotions to the senior grades for several years. Additionally, since most key positions are located in overseas units, promotions would automatically reward our top people with an overseas move for the remainder of their careers.

After follow-on studies and further clarification from field interviews, the basic issue centered on recognizing and using the full talents and experience of the senior warrant officers. The answer to this problem appears to be the Senior Course Graduate Assignment System. The system provides an additional skill identifier (ASI) for Warrant Officer Senior Course graduates. The ASI (4A) also will be posted to authorization documents, reserving the most demanding and challenging positions in the Army for those select warrant officers who have completed the senior course. Twelve hundred positions, representing all 60 active duty MOSs, have been initially identified by MILPERCEN. This listing has been forwarded to major commands and school proponents for review and input. The first assignments under this system should be made in mid-1982.

Continued Progress. For many of the factors influencing attrition, no tangible program would provide a solution. How do you change basic attitudes in a short period that have been ingrained over years? The answer is: you don't! Obviously, there is no simple answer; however, a number of actions can be started that will lead to the resolution of problems in the future. These kinds of programs fall into two broad categories: those that enhance the warrant officer career program and those that increase the recognition of warrant officers as skilled officer technicians. Many of these programs reflect continued progress in both areas.

Concurrent Travel: Since May 1981, concurrent travel has been approved for all CW3(P) and CW4s en route to Europe. This aligns the senior warrant with the top commissioned and enlisted grades.

Field Grade Housing: The CW4 is predominantly an older officer, without the young wife and small children of the company grade commissioned officer. Just like the senior noncommissioned and field grade commissioned officer, the family and life style at the upper years of service are vastly different. Since July 1981, CW4s have been eligible for field grade housing at most posts. The only exceptions are the U.S. Forces Command posts of Forts Devens, MA; Riley, KS; McPherson, GA; Meade, MD; and Hood, TX.

Department of the Army Staff Representation: In September 1980, the Deputy Chief of Staff for Personnel established a position on his staff for a Warrant Officer Management Officer, to be filled by a warrant officer, to address and evaluate policies affecting the Warrant Officer Corps. This has provided the first opportunity for the concerns and problems of the warrant officer to be directly presented to the Department of the Army Staff.

Presidential Appointment of Warrant Officers: A long-standing dichotomy between Army warrant officers and their counterparts in the Navy, Marine Corps and Coast Guard has existed in Title 10, United States Code. A legislative change has been drafted to correct this and grant Army warrant officers the ability to administer oaths, swear people into the service and serve as

commanders with Uniform Code of Military Justice authority.

Single Promotion System: Under the Defense Officer Personnel Management Act (DOPMA), an active duty list (ADL) was established for one commissioned officer promotion system and discontinued the dual system of permanent and temporary grades. Under the provisions of DOPMA, the warrant officer was excluded. Adoption of the ADL for the Warrant Officer Corps is being evaluated for advantages and disadvantages prior to deciding on whether or not to pursue this feature in 1982.

Warrant Officer MOS Reviews: DA Pamphlet 600-11, published in 1977, outlines a professional development pattern for each warrant officer MOS. With the increasing changes in technology and the fast-moving state of the art, an annual in-depth analysis of all 61 MOSs began in May 1981. This review will evaluate all the factors involved from "cradle to grave" of each MOS and strengthen the career development patterns.

Professional Development Programs. Many of the new programs implemented—and under development—are specifically designed to expand the horizons of the warrant officer field. Growth within the Warrant Officer Corps is seen as an important adjunct to satisfying the career needs of individual Soldiers.

Warrant Officer Orientation Course: The majority of warrant officers are directly appointed from the enlisted ranks based on experience and past performance. The typical nonaviation warrant has 9 years of service at time of appointment. A 2-week long orientation course, developed and taught at the U.S. Army Aviation Center, Ft. Rucker, AL, began in March 1981 to provide that needed transition from enlisted to officer status.

Expanded Warrant Officer Advanced Courses: Out of 61 MOSs in the Warrant Officer Corps, 17 did not have any advanced level training. Unified efforts with service schools have identified equivalent training or developed new advanced courses to be operational during fiscal year 1982.

Increased Advanced Course Attendance: Attendance at a Warrant Officer Advanced Course has been available only as TDY en route during a permanent change of station (PCS) move. This has limited the availibility of those eligible and has restricted attendance to about 50 percent of the corps. A change in the fiscal year 1983 budget allocation and funding authorization will allow 100 percent of all eligible warrant officers to attend, either on a TDY and return to home station or in conjunction with PCS.

Expanded Professional Development Opportunities: Beginning last October, expanded quotas have been received for the Warrant Officer Associate Degree Program (WOADP). The fully funded program has been expanded to 100 quotas per fiscal year. Currently, there is an ongoing program to identify 800 warrant officer positions requiring a baccalaureate degree. Additionally, the eligibility for training Regular Army warrant officers has been expanded to 25 years of active federal service. The Warrant Officer Senior Course eligibility requirements have been modified to provide, on a volunteer basis, inclusion of CW3(P) and CW4s into the zone of consideration for selection.

Where to From Here? The warrant officer gained formal status in the Army in 1918. It took 51 years before the formal adoption of an Army Warrant Officer Career Program. The programs that have been developed and implemented in the past 2 years represent a quantum leap. The warrant officer program is not a supplement to the U.S. Army, but rather has proven to be a vital, integral part of its day-to-day operations. The changes indicated in this article are not static, providing an end unto themselves, but rather are a part of an ongoing effort to improve the Warrant Officer Corps. The program is a reflection of the true commitment of the U.S. Army to the Warrant Officer Corps and its future.

ABOUT THE AUTHORS

Colonel George A. Morgan has served as chief of the Warrant Officer Division since July 1980, following his assignment as aviation branch chief. His most recent field command was as commander of the 24th Aviation Battalion, 24th Infantry Division, Hunter Army Airfield, GA. He is a Master Aviator with more than 3,500 hours of accident free flying.

CW4 Kenneth M. Johnson has worked in the Professional Development Branch of Warrant Officer Division since December 1980. He is a Warrant Officer Senior Course graduate and has attained his baccalaureate degree in aviation safety. With 15 years of aviation warrant officer service, CW4 Johnson has served in worldwide assignments including Vietnam, Europe, Ft. Wolters, TX, and Hunter Army Airfield, GA. CW4 Johnson has been trained and has served as a safety technician and a UH-1 Huey aircraft maintenance officer. He is a Senior Army Aviator with more than 2,700 hours of accident free flying.

9th CBAA

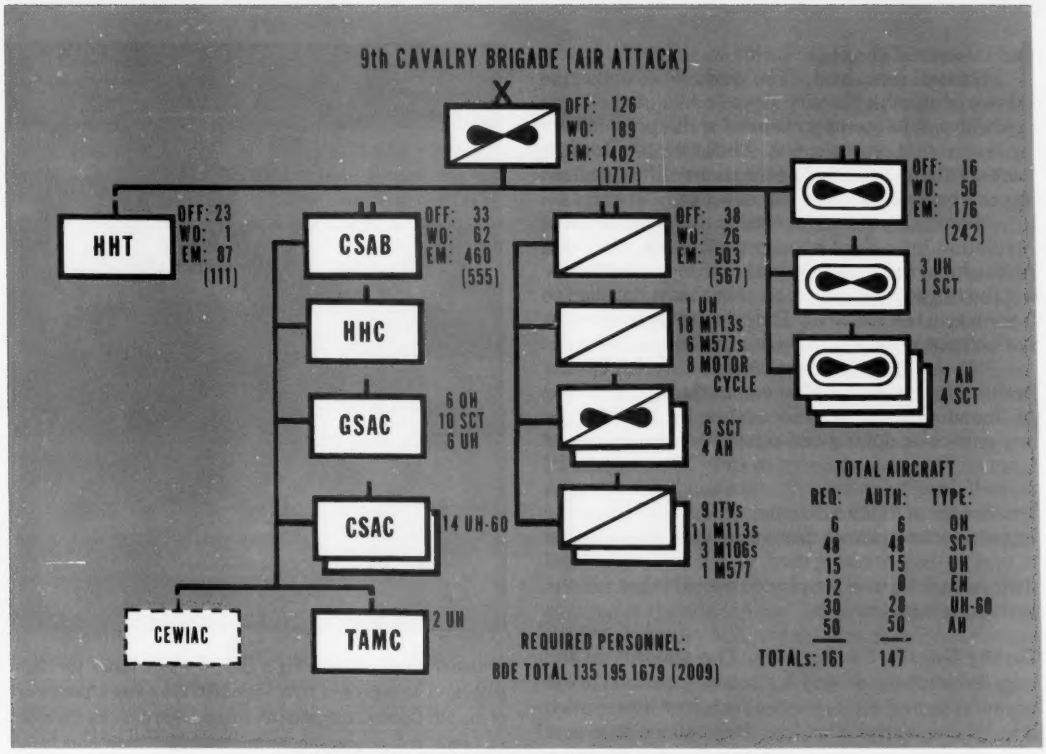
MISSION FIRST

Colonel Thomas H. Harvey Jr.
Commanding Officer
9th Cavalry Brigade (Air Attack)

"MISSION FIRST" is the motto and spirit of the Army's newest progeny, the 9th Cavalry Brigade (Air Attack), which has been organized in the Army's High Technology Test Bed. Indeed, the mission portends exciting times ahead as the Cavalry Brigade (Air Attack) (CBAA) adds a dimension of increased, mobile firepower to the Army's force structure. Activation occurred in March 1981 with the brigade's official name bestowed by Department of the Army, replacing the preactivation designation of Air Cavalry Attack Brigade.

The CBAA, which will begin operational tests in February 1982, is assigned at Ft Lewis, WA, to the 9th Infantry Division commanded by Major General Robert M. Elton. It is, to date, the largest test of a unit's role in the High Technology Light Division (HTLD) project. The purpose of the HTLD project, the Chief of Staff of the Army has said, is to "develop a lean, hard-hitting light division designed to facilitate rapid deployment and make the 9th Infantry Division the forerunner of the future."

A Better Organization. The CBAA undertaking is the newest and largest project in Army Aviation since the 11th Air Assault Division organization and tests in the 1960s. Origins of the concept can be found in the



NOTE: The total strength figure for the 9th CBAA will increase from 2,009 to 2,152 when the second CSAC is added

search for a better organization in the data from the numerous lessons learned in combat and from previous tests conducted at Ansbach, Germany and Hunter-Liggett, CA. Additionally, a wealth of experience was gained from operations in the Return of Forces to Germany (REFORGER) exercises. The feedback from REFORGER 79 had a common theme: Form smaller aviation battalions; separate fighters from supporters; form a divisional aviation brigade. The CBAA is organized (see figure) to provide a dynamic, multi-faceted capability, encompassing a wide range of missions. Succinctly, those missions are to:

- Find, fix and destroy enemy armor
- Conduct reconnaissance, airmobile and logistics operations
- Provide command and control and field artillery aerial observer assets.

Paramount to the whole idea of the CBAA is the exigency to make the divisional aviation resources more responsive to the division commander's needs during combat. Indeed, the CBAA, new and unique, and both evolutionary and revolutionary, provides the division commander with an expanded capability.

Highlights of the organizational and operational concept are that it:

- Provides a unity of command for all division aviation assets
- Is organized for how it fights
- Separates fighters and support
- Increases leader-to-led ratios
- Increases combat power.

Equally as important is the attitude and spirit of the members of the CBAA. We see the brigade—and aviation—as a fully integrated member of the combined arms team. The aviation elements are no different from other units in the division except that they go to war in a different type of vehicle. Our actions and our attitude toward being a full partner with the other brigades is a positive factor. Other brigade commanders in the division know that our organization is something new, and they want to know what it is going to do for them to help win on the modern battlefield.

Honest Brokers. In line with that, let me relate some ideas expressed by Brigadier General Lincoln Jones III, the division's assistant commander for operations

and director of the High Technology Test Group.

General Jones said: "The possibilities and capabilities of the 9th Cavalry Brigade (Air Attack) are probably not fully comprehended at this point in time by the ground commanders. Their previous experiences in the use of aviation assets are different from the roles and missions of this new unit.

"So what we are involved in here is a kind of revolution in tactical concepts. Granted, there are professional differences of opinion as to whether or not the brigade can do the mission that is ascribed to it the way it is structured. The pilot test which begins in February is to find answers to those questions.

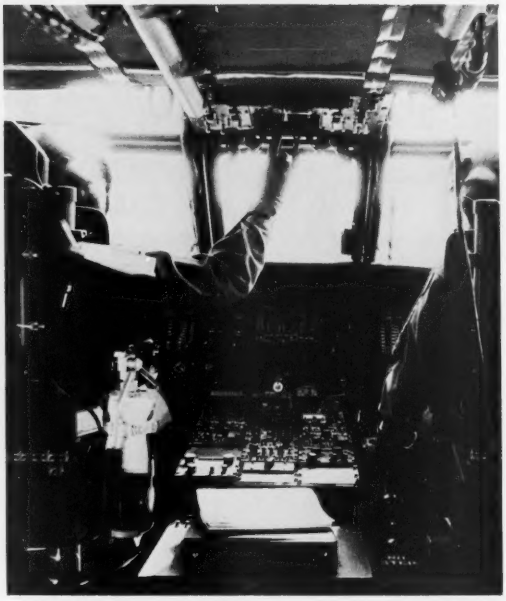
"We in the 9th Infantry Division are the 'honest brokers' for the Army. That means there is no feeling of 'found-on-the-post' syndrome at Ft. Lewis about any particular doctrine or capability inherent in the brigade. Our mission, given to us by the Army Chief of Staff, is to be completely openminded—to have a renaissance of military thinking. We are to look at the brigade's units, evaluate their capabilities, the doctrinal concepts they are supposed to operate under and their actual tactical employment—whether on the positive or negative side."

Cavalry Brigade Employment. The majority of the brigade members are very high on the potential of the organization and don't anticipate much on the negative side to come from the test. We believe this new organization is the best way yet devised for aviation assets to be fully employed as part of the Army's force structure.

Consider some of the uses: With its complete staff and organic units which complement one another, the brigade has the capability to function as an economy of force for the division. It also can be employed as a combined arms force by being task organized with other combat, combat support and service support units from the division. Further, the brigade can be assigned more than one mission during a single division operation while retaining the ability to quickly reconstitute to meet a new threat development.

Operational employment will find the aviation battalion in general support of the division; the cavalry squadron will receive missions from the division; and the attack helicopter battalions will frequently be placed under the operational control of the Infantry brigades. There are also a number of missions where all units will be operating under CBAA control and, when necessary, with appropriate attachments the brigade can operate as a maneuver force.

Full strength of the 9th CBAA will be 2,152; today it is 1,717. Its units are the 214th and 268th Attack Helicopter Battalions, the 9th Aviation Battalion (Combat Support), the 3d Squadron 5th Cavalry and a Headquarters and Headquarters Troop.



Whether they're preparing a UH-60 Black Hawk for flight (above) or an improved TOW vehicle (ITV) for travel, personnel of the 9th Combat Brigade (Air Attack), 9th Infantry Division, Ft. Lewis, WA, appreciate the importance of their work to the combined arms team

I want some of the people involved to tell you about their organizations:

• *Major Johnny G. Turpin, activation commander, 214th Attack Helicopter Battalion:* "Unique to this unit is its size. We have 242 members to support the same number of aircraft normally found in an attack helicopter company (21 AH-1S Cobras, 13 OH-58 Kiowas and 3 UH-1 Hueys). Under the new structure our work has been tripled in some areas because jobs have been consolidated. That may not be a factor in combat, but it produces a significantly increased workload in garrison.

"Too, we had to start from scratch with our standing operating procedure. While we were doing initial training, some battalion aviators had to be going through a NET (new equipment training) process for the modernized Cobras.

"We are now back out in the field on our fifth major training exercise within as many months. At the 4-month level, the attack companies had their Army Training and Evaluation Programs (ARTEPs), and they really had to hustle to get ready.

"The willingness to do more than could normally be expected within such a short timeframe is solid evidence of how excited everyone is about this opportunity to take part in something new. So my opening remarks are not negative observations but merely statements of facts of life with which we're coping. Incidentally, when we claim that everyone was able to participate in the unit's formation from the ground floor, that is a literal truth because we all pitched in to renovate our headquarters building!

"A group I really want to brag on is our noncommissioned officers. Almost to a person they are one grade below what we are authorized, so we are challenging the younger, less experienced NCOs. That is a brigade-wide condition, and I think the challenge everywhere is being met in a very *credible* way. I know it is in this battalion.

"The biggest factor is that we have approached our organization and training programs with the idea that we are getting ready to go to war rather than to a test. That we will be ready for the latter because we have prepared for the former is a logical deduction.

"This brigade concept will work; I've no doubt of that. I have commanded an air cavalry troop and have had experience in an attack helicopter company. The large size of those units meant the command and control was spread out; and I always felt there was a certain degree of uncontrollability. In the attack battalions as they are now structured, the command and control is simple and direct, making a much cleaner organization. There are some obvious shortcomings in the administrative and logistical areas, but the test evaluation will probably result in some changes to accommodate those.

"Too, this configuration gives the division twice the amount of attack assets that it previously had, making us an integral part of the division's fighting capability. That's why we exist—to support the ground Soldiers."

LISTEN UP, YOU GUYS. While the AH-1S has the floor now, cooperation between the Army's gunships and the Air Force A-10s means their survival rate and the kill ratio goes up five to six times when the two are combined. The A-10 Thunderbolt II jets, from the Fighter Weapons School, Nellis Air Force Base, NV, came to Ft. Lewis, WA, for a JAAT with the 9th Combat Brigade (Air Attack)

• *Major Palmer J. Penny, commander, Company B, 9th Aviation Battalion:* "Support is our business, and we've been given 14 UH-60 Black Hawks to replace 23 UH-1 Hueys to form our ALO-2—CSAC (authorized level or organization-2—combat support aviation company). This is a good place to have the Black Hawks because the division really uses aviation to a great extent. Everytime there is an ARTEP, either company or battalion, we will move the troops. It has been acknowledged that this one company cannot support the whole division, so there is going to be another combat support aviation company added to the battalion.

"Company commanders will be captains. I have to go along with the advantage this concept is giving to the aviation captains. They have not had an opportunity to command a company before, so this will be an important career progression for them.

"I am sold on the brigade structure because it is so important to all of the Army. I think we are really coming of age now. Some very good people are staying in aviation, and others are starting to listen to us.

"One area Colonel Harvey wants to stress to the division is that we are Soldiers first and our tools just happen to be aviation assets. We are big on the little things—wearing fatigues when not flying, taking PT (physical training), pulling guard duty, all the things a Soldier is supposed to do as part of the team.

"This 9th CBAA is long overdue. The firepower and the mobility that we give this division is so much greater than any other single asset, and people are beginning to realize that."

Scout the battlefield and have the attacking force ready. The OH-58 Kiowa (right) and the AH-1 Cobra represent those two fundamentals of defensive operations in the 9th CBAA

• *Lieutenant Colonel George M. Mullen, commander, 3d Squadron 5th Cavalry:* "The 3-5 Cav is a ground unit that also has 20 aircraft found in the 2 air troops. This is unique for a brigade, since the division would normally be the level that integrated ground and air operations.

"Our mission in the Cav is reconnaissance, in the air and on the ground. The division commander is going to have to know where his people are as well as what the enemy is doing. Our whole purpose is to optimize the interface throughout the division.

"The Headquarters and Support Troop, commanded by Major Steven Lodwig, is now the largest segment of our squadron if not of the brigade. At full strength it will have about 300 members. It has special platoons like nuclear, biological, chemical (NBC), electronic surveillance, aviation maintenance and motorcycle. Assignments to the latter are much sought after, by the way, and I'm using them as rewards for a job well done. I believe every member of this squadron is convinced that, as Captain Richard Rutz, commander of A Troop, said, 'This is the only way to go.' Another expression of the 3-5's attitude was made by a young man in the NBC platoon. Private Phillip C. Worthy said, 'Knowing how important our job is makes it worthwhile to put forth the extra effort to be mission-ready.' I could not agree more!"

Headquarters and Support Troop, 3-5 Cav, does not have a Cobra but it does have an alligator. Al, the troop's mascot, has a head's-up attitude about mission importance

Testing Time. As you can tell, the 9th CBAA is staffed at all levels with Soldiers who are ready, in the Cav tradition, to be out front in dedication and mission commitment.

We are, of course, also committed to the test which is being planned by the High Technology Test Bed/Group in conjunction with the Combined Arms Test Activity, Ft. Hood, TX. Let me tell you more about how it is to be conducted.

Phase I will begin in February and will be a combination of a brigade field training exercise (FTX) and division command post exercise. This will be in a European scenario here at Ft. Lewis. It will end in March, and there will be a 3-week break before the next phase starts in April. There will be a similar break between April and May. Those breaks are important because that is where advantages of the test's innovative technique of dynamic evaluations will be realized. In that kind of evaluation, data is taken very rapidly and can be used by General Elton, as the test director, to correct problems as they are observed during the test. It is thus not necessary to wait for data to be collated and further analyzed. This means the second phase in April and May will be conducted with observed faults corrected, rather than continuing to test with procedures which have proven to be less than desirable.

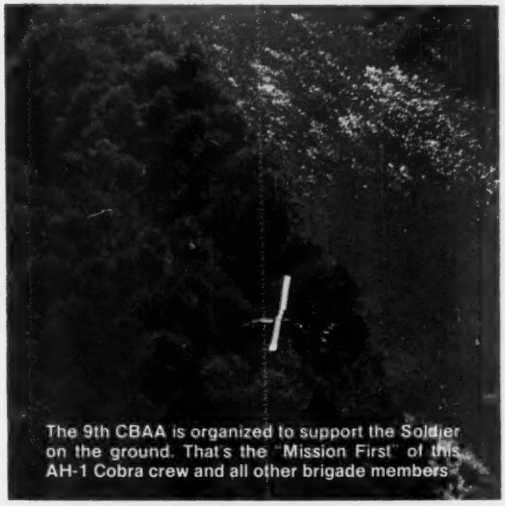
Phase II will be a Mideast scenario held in the desert at the Yakima Training Center, just over the mountain from Ft. Lewis. Thr graduation exercise will be in May, with a full-scale, 7-day division FTX.

Senior evaluators from the 9th Infantry Division and from other installations will be used.

This testing period of the 9th CBAA is going to validate the Division 86 Cavalry Brigade concept and will provide data for the Department of the Army decision to field or not to field this type unit in the rest of the Army's divisions.

So you can see we have a challenge to meet. We in the brigade know that we are the torchbearers for this unit concept which gives Army Aviation an unequalled opportunity to prove how effectively and efficiently it can serve as an integral part of an infantry division. Our credo is to prepare ourselves for war so we will be ready for the test.

I believe we are going to prove to everyone concerned that this is truly a leap forward for Army Aviation and the U.S. Army.



The 9th CBAA is organized to support the Soldier on the ground. That's the "Mission First" of this AH-1 Cobra crew and all other brigade members

NUCLEAR BIOLOGICAL CHEMICAL

Chemical Agents, First Aid and Long-Term Effects

This is the third in a series of nuclear, biological, chemical articles. The first, "Nuclear, Biological, Chemical—Training and Development" appeared in the August 1981 issue and the second, "Nuclear, Biological Chemical Decontamination Problems" was printed in October 1981. Copies are available by writing to Editor, ***Aviation Digest,*** P.O. Drawer P., Ft. Rucker, AL 36362

Captain Timothy B. Savage
Chemical Officer
Directorate of Combat Developments
Fort Rucker, AL

GB, GD, VX, HD, CX. Alphabet soup? No—types of chemical agents, and even if you may not understand the symbols, as an aviator you had better know the agents, their effects and proper first aid.

Chemical Agents. Mustard acts as a vapor or liquid to attack the eyes, lungs and skin. At low concentrations, the eyes are affected and vision may be impared or totally lost. Symptoms range from non-existent to a redness of the eyes and discomfort and in low concentrations the damage usually has been done by the time these are felt. Often corneal scars cause a permanent loss in visual acuity. Mustard causes breakdown of lung tissue and degrades or kills because the lungs no longer transfer enough oxygen to the blood. After short periods of skin contact (as little as 5 minutes), the skin is damaged and will eventually blister, even though the mustard has been removed. There is no pain or redness for several hours. The blisters are painful and may become infected when broken but should not be fatal. They incapacitate in varying degrees depending on their location and severity.

Hydrogen cyanide is the primary blood agent of concern and it acts as a gas, not a liquid. Hydrogen cyanide enters the body primarily through the lungs and is transported to the body cells where the cyanide binds to and inactivates cytochrome oxidase. This enzyme inactivation effectively stops aerobic cellular metabolism, thus an individual dies when the brain cells die from lack of oxygen. This lack of oxygen to the brain causes panting, gasping, coma and death. Because the blood is rich in oxygen, the lips and underneath the fingernails appear pinkish to red.

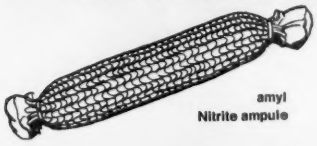
Nerve agents enter the body as a vapor or liquid through the lungs, eyes, skin or digestive tract. The first nerve agent, Tabun—or GA, was discovered by Dr. Schrader of I.G. Farbenindustrie, a German chemical firm, shortly before World War II while he was looking for an insecticide. (Indeed, many present-day insecticides can kill people the same way nerve agents do.) Nerve agents inactivate cholinesterases, enzymes found at the nerve-muscle junction, or synapse. Cholinesterases, in turn, normally deactivate acetyl choline, a messenger substance which is released from the nerve and tells the muscle fiber to contract. Thus, when cholinesterases (the relaxers) are deactivated, the muscles continue to contract after the nerve impulse has ceased. In effect, the muscle cannot relax. This causes the broad range of nerve agent symptoms: pupil constriction (miosis),

CHEMICAL AGENTS	toxicity duration
Nonpersistent	
Hydrogen cyanide (AC)	(5 minutes)
Nerve (GB)	(minutes to hours)
Phosgene Oxime (CK)	(minutes to hours)
Persistent	
Mustard (H, HD, HL)	(hours to days)
Nerve (GD, VX, VR-55)	(hours to days)

twitching, jerking, drooling, involuntary bowel movements, convulsions and eventually death is caused by asphyxiation because of bronchoconstriction, excess bronchial secretions, respiratory muscle paralysis and loss of central nervous system control of breathing.

First aid. For mustard agent eye and skin effects, first aid consists of washing off the agent and treating as for normal eye irritation or blisters. There is no first aid for lung damage, only supportive treatment.

The first aid for blood agent is amyl nitrite ampules crushed and placed in the face of the mask, two ampules every 5 minutes, not to exceed a total of eight. Presently, there is some controversy in medical channels over amyl nitrite. In fact, the Air Force no longer uses amyl nitrite since it is in itself a body poison. If the blood agent victim stops breathing, artificial respiration must be performed both to keep the blood oxygenated and to transport the amyl nitrite through the blood. Amyl nitrite changes hemoglobin to methemoglobin which binds with cyanide more readily than hemoglobin does. Hence, less cyanide is released to the cells.



amyl
Nitrite ampule

automatic
atropine injector

First aid for nerve agents is three injections of atropine. One injection should be administered each 5 minutes (FM 21-41) until all three have been given or symptoms of over atropinization occur. The ranking individual may authorize additional atropine as required, and medical personnel will administer oximes. Artificial respiration should be given as necessary. Several factors require further discussion.

First, artificial respiration procedures may require modification. Exposure to nerve agent causes the intercostal muscle between the ribs to strongly contract. The muscles will contract until there is permanent depolarization of the neuromuscular junction at which time the muscles will relax and be incapable of responding to neural stimulation. This contraction may last for several minutes and may require one individual to actually stand on another's chest to cause exhaling. Once the muscles are adequately fatigued they will be flabby and little resistance will be encountered while administering artificial respiration.

Assuming that the individual is unconscious and demasked, the only feasible method for determining that sufficient atropine has been given is tachycardia or rapid heartbeat. The range of 120 to 180 heartbeats per minute indicates that enough atropine has been given.

Long-Term Effects. Some little-known, long-term effects also must be considered, particularly by the aviator. Long-term effects of low concentrations of blister agent can degrade the eyesight and lower aviator effectiveness. Recovery will be slow and may take several weeks to complete. Sublethal doses of blood agents can lower the concentration of oxygen within the body cells and may have the same overall effects and symptoms as hypoxia. Recovery should be complete within a few hours.

The long-term effects of nerve agents are perhaps the most insidious and best documented. Miosis, or pinpointing pupils, has been documented for as long as 6 days after a minor exposure and occurred in at least 48 of 53 cases studied. These cases were for the most part mild, but, particularly serious for aviators since low concentrations will cause night vision to be lost. Another medical problem is pain on focusing, experienced in 6 of 53 cases. In one case, the patient first drove a car 13 days after exposure, but hit a curb because he misjudged the distance. In other instances, focusing ability was not completely recovered for up to 8 days even after mild nerve agent exposure. Other central nervous system symptoms such as headache, mood changes, disturbed sleep, easy fatigue, increased perspiration and dizziness occurred in 27 cases out of 53. It appears that those individuals with a heavier exposure tended to have more central nervous system problems.

After considering the symptoms of even sublethal doses of chemical agents and some of the drastic long-term effects, it is obvious that aviators must avoid the slightest exposure to chemical agents in order to remain combat effective. The aviation community must train, organize and equip itself for the AirLand Battle if we expect to be an effective member of the combined arms team.

photograph by SP4 Glenn A. Ogle
construction by R. and Hazel Glenn

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The only requirement for it to be carried with your name is that it be functionally related to safety, tactics, maintenance, flight or some other aspect of aviation. Mail captions and your name to Editor, *U.S. Army Aviation Digest*, P.O. Drawer P, Ft. Rucker, AL 36362.

U.S. Army Communications Command
ATC ACTION LINE

What Is An Airport Traffic Area?

BY DEFINITION the Airman's Information Manual (AIM) states that, "an airport traffic area is that airspace extending from the surface up to but not including 3,000 feet AGL [above ground level] within a horizontal radius of five statute miles from the geographical center of any airport, *at which a control tower is operations.*" This is true unless the size of the airport traffic area is specifically designated otherwise in Federal Aviation Regulations (FAR) Part 93. In addition to this definition in the AIM, it is also interesting to note that airport traffic areas are not covered in the section listed as controlled airspace, uncontrolled airspace or special use airspace, but in Section 5, listed as "other airspace." This in itself is enough to make an aviator ask the question, "Just exactly what kind of airspace is an airport traffic area?"

An airport traffic area is not controlled airspace because it is not designated by formal rule making action (with the exception of airport traffic areas modified in FAR Part 93). Basic cloud clearances and visual flight rules (VFR) minimums may or may not apply to airport traffic areas. Weather minimums are totally dependent upon the establishment of a control zone coincident with the airport traffic area. The situation where an airport traffic area exists without a control zone is infrequent; however, there are isolated locations in Continental United States such as Sherman Army Airfield. Ft. Leavenworth, KS.

This situation presents few problems during air traffic control (ATC) tower operations; but the aviator should be aware that during nontower operations, the sterility that existed due to separation provided by ATC is nonexistent. The basic question is in this case, "Does the controlling instrument flight rules (IFR) ATC facility guarantee separation from all IFR/VFR traffic during the execution of an instrument approach procedure in the above situation?" The answer is "no" in the case of an airport traffic area without a control zone. There is most likely a transition area established which lowers the floor of the controlled airspace to 700 feet above the ground in a 5-mile circle around the airport. In some situations an aircraft flying at the minimum descent altitude may be below this 700-foot protected airspace and actually flying in uncontrolled airspace until missed approach and climbing back into the 700-foot transition area.

These are just some of the considerations when executing an instrument approach to an area where the control tower is not open and a control zone does not exist or is not in effect. The key is--if and when you break out of the clouds on an instrument approach keep a watchful eye out for marginal VFR aircraft.

There are other requirements for airport traffic areas in accordance with the Federal Aviation Regulations that pilots are not but should be aware of. FAR Part 91.70 designates maximum aircraft speeds when operating inside an airport traffic area. These are:

a. One hundred and fifty-six knots for reciprocating engine aircraft (T-42, U-8 and C-7).

b. Two hundred knots for turbine powered aircraft (U-21, OV-1, C-12). Also, FAR 91.87d states: "(d) Minimum altitudes. When operating to an airport with an operating control tower, each pilot of. . . .

"(1) A turbine powered airplane or a large airplane shall, unless otherwise required by the applicable distance from cloud criteria, enter the airport traffic area at an altitude of at least 1,500 feet above the surface of the airport and maintain at least 1,500 feet within the airport traffic area, including the traffic pattern, until further descent is required for a safe landing;

"(2) A turbine powered airplane or a large airplane approaching to land on a runway being served by an instrument landing system (ILS), shall, if the airplane is ILS equipped, fly that airplane at an altitude at or above the glide slope between the outer marker (or the point of interception with the glide slope, if compliance with the applicable distance from clouds criteria requires interception closer in) and the middle marker; and,

"(3) An airplane approaching to land on a runway served by a visual approach slope indicator, shall maintain an altitude at or above the glide slope until a lower altitude is necessary for a safe landing."

Normal bracketing maneuvers above or below the glide slope are authorized for the purpose of remaining on the glide slope.

As can be seen there are many requirements and considerations when operating in an airport traffic area other than just those of communications. Remember, AR 95-1 states that, "Federal Aviation Regulations on flight operations will be followed while in territory controlled by the Federal Aviation Administration except as modified in this regulation."

Readers are encouraged to address matters concerning air traffic control to:
Director, USAATCA Aeronautical Services Office, Cameron Station, Alexandria, VA 22314

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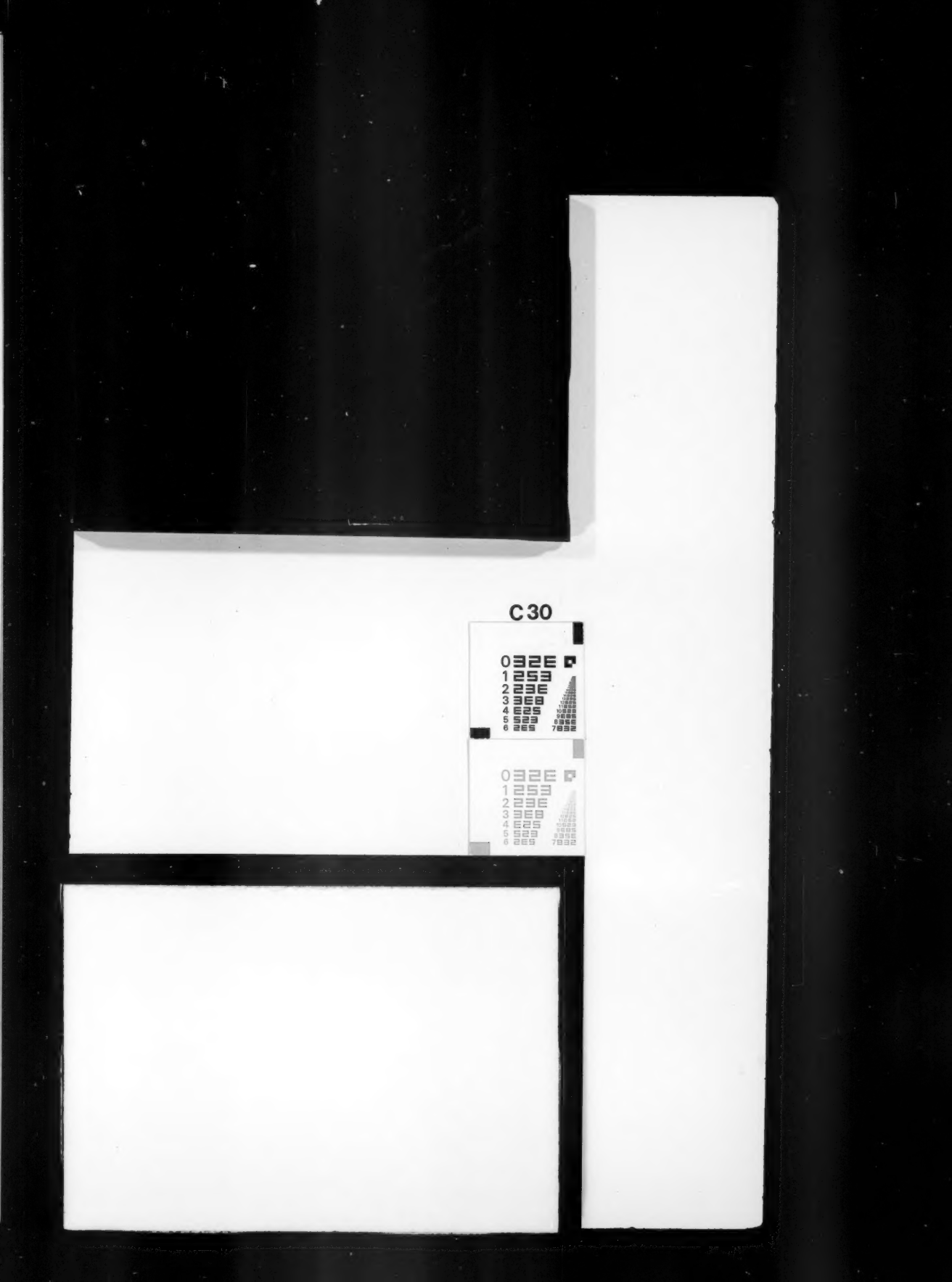
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